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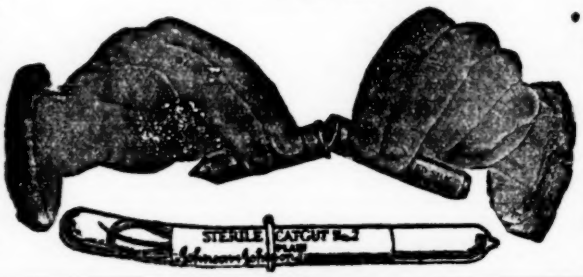

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Thoughts
ON THE
EMPLOYMENT OF PREGNANT WOMEN IN MUNITION FACTORIES.[1]

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The factory is situated a mile from the station and tram terminus, and all workers have of necessity to walk this mile as there is no other way of reaching their work. The exercise is most salutary for them, and it is surprising to see the difference in their general appearance noticeable after about six weeks' work with us.

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Our workers are of the usual city type—undersized, badly developed, with very bad teeth and often anæmic. About 50 per cent. are married, and often these have their household duties to attend to after they get home at night. In spite of these drawbacks, after about six weeks' work, and hard work too, if they have the grit to stick it, they become more robust, less anæmic and much more healthy-looking in every way. I consider that this improvement is due to healthy exercise, well disciplined work, the good and abundant food supplied in the canteen at moderate price, and above all to the abundance of fresh air which they are obliged to get when working in this factory. The fresh air and hard work make them hungry, and getting good money they can well afford to obtain sufficient food. During their meal hour they have amusement, some days they dance and on others concerts are arranged. All workers are medically examined before being engaged, and if found suitable but with bad teeth these are extracted by the factory dentist before work is actually started.

During the nine months, June 1st, 1917, to Feb. 28th, 1918, I have kept records with a view to finding out the effect of the work on any woman who may become pregnant. Of the total number of women workers engaged in that period (1197) 575 were married and 622 single. The married women have been brought into the labour market for various reasons. Munitions factories have given them their opportunity, and factory managers have no alternative but to engage them.

THE NATURE OF THE PROBLEM.

The question is one which may be looked at from two standpoints: (*a*) under the enforced conditions due to the war; (*b*) post-war conditions.

As regards (*a*), seeing that it is essential for a certain percentage of married women to take up some form of work outside the home, it is equally essential for their medical welfare to be carefully studied, with a view to bringing about a set of conditions which will make it possible for them to carry on their work to the satisfaction of their employers, and without fear of injury to themselves or the future race. In so doing it should be possible to find by experience whether similar conditions could be applied in post-war days if the necessity for married women to work then should still exist.

In a factory such as ours the work is mostly arduous and heavy, but the factory management have had all operations classified into heavy, medium, and light operation, and they are also willing, if they have the vacancies, to put workers who are not fit for the heavier operation into the less arduous classes, so that I have been enabled in many cases (by this coöperation on the part of the factory management) to transfer pregnant workers from the heavy work to the lighter operation and so gather materials for this report.

The nature of the work also necessitates extreme cleanliness, and in this factory such cleanliness is enforced with the utmost rigour.

The question then arises in a factory of this kind, where so many married women are employed, whether when they may become pregnant it is better to dismiss them at once or to keep them at work until within a few weeks of their confinement. Up to the present I have not taken on new workers if they are pregnant, as I do not consider that they would become proficient before they had to leave, and this would be hardly fair to the factory.

THE QUESTION OF EFFICIENCY.

We will first study the question solely from the factory's point of view—"efficiency." The authorities of the factory might put forward the arguments—

(*a*) That the women were no longer capable of heavy work.
(*b*) That not being in good state of health their time-keeping and work record would be bad.
(*c*) That miscarriages might occur, which would disorganise the work at the time, and which also might lead to compensation claims.
(*d*) That in the event of there not being any suitable light work at which to employ them the women would not be worth their pay.

A natural prejudice would also be felt against seeing women about in such a condition, but this hardly amounts to a reason, and in a factory where about 90 per cent. of the workers are women should not even be a prejudice.

The answers to these arguments are:—

(*a*) The women need not be capable of very heavy work, as in most factories there are many lighter duties to which pregnant women could be put, and in which no strain is put upon the abdominal muscles, while they do not in fact necessitate as much energy as is required in household duties.

(*b*) The fear that the woman's time and work records would be bad at such times is one that in some cases, of course, may be justified, but if the upset is such as really to incapacitate her and to cause her to neglect her work, then there is nothing to compel her to stay if she wishes to leave, and nothing to prevent the factory dismissing her if really a negligent worker. On the other hand, some women feel better when in such a condition, and in all cases their health must be the better for regular and sufficient exercise, good food, and healthy occupation for their minds and bodies.

The time when the pregnancy is most likely to upset the health is during the first four months, when the condition cannot be diagnosed unless the worker comes to the factory doctor complaining of symptoms pointing to such a condition, and this she is not likely to do if she fears dismissal, so that bad time-keeping and slack work due to such causes cannot be eliminated, even in factories where dismissal is the rule.

A woman who is anxious to retain her work will do her best to attend regularly and to give as much satisfaction as possible in all her duties, and the mere fact that she is regular in her habits will probably keep her in better health, and so increase her capacity for work.

(*c*) Miscarriages are very unlikely to occur if the woman is encouraged to make her condition known to the factory doctor at as early date as possible, with a view to being transferred to, or retained in, work suitable to her condition, and if she is not in fear of dismissal she will be much more likely to report early. No factory could possibly obtain information as to the condition of its workers during the first three months of pregnancy excepting by the voluntary information of the workers themselves, and yet this is the period during which nearly all miscarriages occur, and is the most critical time during the whole period of pregnancy. No claim for compensation could possibly stand if it were shown that the factory authorities required the women to notify their condition to them as early as possible with a view to suitable work being found, and it would then be a woman's own fault if she continued her own heavy work against the known wishes of the management.

In our factory we have notices put in the changing houses and in the ambulance-rooms asking the women to notify the doctor as early as possible if they are pregnant, so that they may be placed on work which will avoid any risk of personal injury.

(*d*) The argument that the woman by doing other than her usual work is not worth her pay is answered by the statement that the disciplined and trained worker is more worth her pay even with a slight physical disability than the undisciplined and untrained worker who may take her place.

[1] Being part of a paper read at the Oxford Welfare Conference, August 6th–10th, 1918.

The factory arguments in favour of keeping on such women are:—

(*a*) That good feeling will be promoted if the workers know that the management have their actual welfare at heart, and are not penalising them for natural physical disabilities.

(*b*) That this mutual good feeling will produce better workers.

(*c*) That miscarriages will be actually fewer in a factory where the conditions are known at an early date, as such accidents are thereby prevented, along with their subsequent disorganisation of the factory work.

THE WORKERS' POINT OF VIEW.

From the workers' point of view it seems to me that most arguments must be entirely in favour of being kept on. The most cogent reasons are:—

(*a*) The worker should not be turned away from work that she is quite able and competent to do because of her condition, excepting in cases where the work is very heavy, but as in our factory (and also, I should think, in most other factories) there is alternation of work, and as the same woman may do various kinds of work, some suitable employment can usually be found for her.

(*b*) The worker will not be tempted to take drugs or to use other means to provoke miscarriage if she is free from the fear of losing work where she can earn a good wage, and being obliged either to drop out of the labour market altogether or to take on duller and less highly paid work because she cannot do without the money. I have heard of cases in which the worker when dismissed from a factory because of her condition has, in order to obtain bare necessities, gone rag-picking on some refuse heap and got into such a bad condition that both she and the child have been in great danger at the time of the actual confinement.

(*c*) If the worker continues at her more highly paid work she can afford to save money for the time during which she will be laid by, and can also probably then afford to take a longer interval after the confinement, when the rest is all-important both to herself and the child.

(*d*) During the pre-confinement period, if she earns good money, she can enjoy the better food which is so necessary to her condition. She shares the company and fellowship of her companions, so necessary to keep her cheerful, and by walking a mile to work obtains plenty of exercise and fresh air. The maintenance of the mother in a fit state of health and spirits is all-important to the health of the child to which she is to give birth. Several of the workers are reported as never having felt so well during former pregnancies or having had such good confinements or such healthy babies. In no case has the actual nature of their employment had the slightest detrimental effect.

The woman's arguments against staying on might be:—

(*a*) In some cases she might not feel well enough to turn out to work and to travel to and fro, but if she does not really feel well enough to do so, she is practically free to leave.

(*b*) The fear that she might miscarry. This fear will very probably be dispelled if the worker notifies her condition. As a matter of fact, the tables which I have prepared and give here in summary show that of the very few cases of miscarriage that we have had—only 15, including 2 premature births, during the whole of the nine months—13 were at very early dates before the factory authorities could have taken any steps toward a dismissal, as they could not possibly have known of the condition except by the voluntary information of the worker herself. Only two occurred while actually at work. I believe that some factories have had a lot of trouble in this way, but we have never had any real trouble of that kind; one baby was actually born in the ambulance-room, as the woman had miscalculated, but as the ambulance-room was equal to the occasion this did not matter. Another threatened miscarriage was arrested by suitable treatment, and the pregnancy continued until full term.

(*c*) A reluctance to staying among her fellow-workers.

THE QUESTION OF MATERNAL WELFARE.

From the State point of view the greatest question of the present day is the increase of the human race and infant welfare. And any measures are to be encouraged which tend to promote the greater well-being of the mother before and at the time of confinement, and the health of the coming generation. If the woman can keep in a more healthy condition, be better fed and happier in cheerful surroundings, this is all for the good of the State and is likely to raise the birth-rate. I contend that a woman who is struggling for an existence and is debarred from earning a good wage simply through her condition is being discouraged instead of helped at a time when she deserves all possible aid. She is thereby thrown into a condition of anxiety at a time when worry is a detriment and she is prevented from saving for a period of stress. In consequence the child suffers before and after birth.

Every working mother should be encouraged, if possible, to abstain from work for at least three months after confinement, so as to recover completely her normal state of health, and to nurse the baby during this time; but in practice this is very difficult, as the woman is often short of money and implores to be taken back. If the State can promote a scheme to keep the mother entirely in the home, so that she can feed and look after her children, so much to the good; but while she depends upon her individual exertion, no woman should be debarred from doing the best for herself and for unborn children. From a medical point of view reasonable work combined with exercise and good food are the proper preparation for childbirth.

I wish particularly to emphasise the fact that from a medical point of view no certain diagnosis of the woman's condition can be made during the first three months, unless she will tell you her own suspicions; and yet this is the period during which most risk is run and during which most miscarriages occur. Also this is the period in which measures are taken with a view to provoking miscarriage, if loss of work is feared, so that no factory can be free from such danger even if it dismisses all known cases of pregnancy, while the State will certainly be the loser of some of the coming generation.

SUMMARY OF RECORDS.

In the report that I have drawn up I have had 101 cases of women who became pregnant during the nine months of which I have kept records.

Of these 46 cases terminated successfully with 47 children before the end of February, 1918, when the report was made up. One woman had twins; 7 cases could not be traced but were all right when last heard of.

Thirty-four cases had not come off at the end of February, but of these 19 have terminated successfully since.

There were 2 premature births and 13 early abortions—that is, before the third month of pregnancy. Of the 2 premature cases one had operation for advanced carcinoma of cervix at 5 months and the other contracted syphilis at 6 months, the baby being born dead at 8 months.

The 13 miscarriages were all very early, from five to ten weeks. Of these, one patient fell out of bed while dreaming and miscarried three days later, another took "female pills" and fell downstairs, a third had had tuberculous trouble, and a fourth previous miscarriages.

It is very possible that other babies have been born who do not appear in my report, as other women may have had confinements without reporting their condition. It is, however, unlikely that there have been more miscarriages than I have recorded, as all workers who are absent for three days consecutively are visited at their homes and inquiries are made into the reason for such absence, so that miscarriages could hardly escape notice by reason of this factory regulation.

I am still keeping records of all such cases, and now that the workers do not fear dismissal and know that an interest is taken they willingly notify their condition. Thus they are kept under observation even after they leave, with the result that my next year's records will be more complete than those for the nine months to February, 1918. All the women whom I have seen since confinement report that they have had easy labours, healthy children, and that they never felt better while carrying.

One woman who worked until ten days before her confinement had the first healthy baby that she had ever had out of eight. Another had had 12 pregnancies, but only one other living child before this one. A third told me she had seven other children and that this was the healthiest one. All the women told me that they found the walk to work beneficial, and said that they had never felt so well before.

ARTS AND HANDICRAFTS EXHIBITION. — The exhibition which is organised annually by the *Englishwoman* will this year be held at the Central Hall, Westminster, from Nov. 13th to 23rd. The exhibition is designed to encourage home handicrafts, and has a distinct bearing on the employment of disabled soldiers. A number of social organisations, including the Church Army and the Y.M.C.A., use the exhibition for the sale of their hand-made productions.

THE LATE DR. J. S. COOPER.—The death occurred on August 15th, at his residence in Culter, of James Snowie Cooper, M.D. Aberd. After graduating at Aberdeen University in 1891 he practised for a time in Lancashire, and was then physician for three years at the Sanatorium, Banchory. Lately his health had precluded his practising his profession. He is survived by a widow, daughter of the late W. R. Bruce, D.D., minister of Newmachar, and one daughter.

METHODS OF CONTROL OF FRAGMENTS IN GUNSHOT WOUNDS OF THE JAWS.

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IN considering the methods at our disposal for the control of the various fragments in gunshot wounds of the jaws, it is necessary first of all to review the forces producing the displacements which require subsequent reduction and control.

There are four factors concerned: (1) direction of missile; (2) size of missile; (3) muscular contraction; (4) fibrocicatricial contraction (in later stages of untreated cases). The direction of the missile and the size of the missile are rather intimately connected; other things being equal, the larger the missile the more will be the gross displacement produced, and this in the direction of the missile; the fragments tend to be of large size, the number of them being, I think, strictly proportionate to the velocity of the missile. When, however, the wound is produced by a rifle bullet, we roughly get three effects: (1) the high-velocity bullet striking the bone at right angles to its surface will frequently drill it and produce radiating fractures with little or no displacement, and none in the direction of the missile; (2) the high-velocity bullet striking the bone at a tangent produces extreme comminution, and constitutes one of the most difficult forms of fracture we have to treat; (3) the low-velocity bullet which produces a local shattering with some displacement in the direction of the missile.

Muscular Action.

The various muscles which may exert a displacing force on the various fragments are, of course, well recognised, but many of the so-called depressors and elevators of the jaw exert important stresses in other directions, which become exaggerated when the continuity of the mandible is broken. A few years ago when I realised this double action of nearly all jaw muscles I calculated the direction of their forces after a large number of measurements by plotting the average measurements on a graph. (These plotted charts have unfortunately to be omitted for want of space.) The following illustrations demonstrate this.

The *temporal* muscle, which, of course, has an upward and backward pull, also exerts an outward pull of 2 cm. on each side.

The *masseter* likewise is not only an elevator of the mandible, but will pull a posterior fragment very much forwards and also considerably outwards, the latter stress being over 1·5 cm. on each side.

The *internal pterygoid* muscle is an elevator of the posterior fragment, but if unopposed would tend to pull it 4 cm. inwards on each side. This action, of course, is normally more than counteracted by the masseter and temporal actions, but occasionally owing to hyperdevelopment of the internal pterygoid a state of equilibrium may be obtained, or even with the aid of other muscles the fragment may be tilted inwards.

The *external pterygoid* normally draws the condyle and interarticular fibro-cartilage forwards, but what is not usually recognised is that it has almost as much inward pull as it has forward—i.e., as 3 : 3½. The direction is also always slightly upwards.

The *superior constrictor of the pharynx* has also a direct inward pull upon a posterior fragment, and if a patient is constantly using this muscle in swallowing for some days, it may be, after being wounded, it may produce a marked inward displacement of the ascending ramus. But, on the other hand, I have seen cases in which the displacement was said to be due to this muscle when it was clearly due to cicatricial contraction between the mandible and the tongue.

The *digastric* and *geniohyoid* muscles are normally depressors of the mandible, but when continuity is severed, especially in bilateral fractures in the anterior region, they tend to draw the fragments more backwards than downwards, and also by reason of their attachments to the hyoid being more widely apart than their insertion into the mandible, a symphysis fracture tends to be kept open at its lower end.

The *mylohyoid* muscles being attached in a fan-shaped manner to the inner surface of the mandible, tend to draw anterior fragments towards the middle line and to invert them, and since the mylohyoid muscle is a swallowing muscle, it is one which is frequently in action before immobilisation is usually brought about.

The muscles of *facial expression* (as distinct from the masticatory muscles) all have an inward moulding effect upon fragments of both jaws, and tend by their use to narrow and compress the dental arches in a backward direction. Many of these muscles, but especially the buccinators, are attached either directly or indirectly to both maxilla and mandible. The effect of these muscles is most seen in fractures of the upper jaw, the fragments of which on account of it are always drawn downwards and backwards. (This is frequently thought to be due to the effect of gravity alone, but the extreme difficulty of controlling the fragments unless the facial muscles are prevented from contracting shows that this is not so.)

But while these are the directions in which forces are normally exerted by the individual muscles, there are two important variations which tend to produce unexpected effects.

(*a*) Abnormally developed muscles, or muscles used exclusively after the wound, produce a variation of displacement from that expected. For instance, abnormally developed internal and external pterygoids may overcome the action of the masseter and temporal muscles, or if the fracture is just anterior to the attachment of the superior constrictor of the pharynx and the patient is continually swallowing small boluses before the fragments are fixed, the posterior fragment may be tilted inwards.

(*b*) The condition of the various groups of muscles at the moment of impact does, I think, have considerable effect upon the amount and direction of displacement. The condition being whether they are strongly contracted or flaccid at the time. For instance, if a man is "setting his teeth hard," doing some desperate deed when he is struck in the posterior third of the mandible, the posterior fragments will at once be strongly drawn upwards and outwards, and there will not be marked depression of the anterior portion. Whilst if the man is charging with his mouth open, shouting and excited, and is struck in the same place, the anterior fragment will tend to be strongly depressed, but the posterior will not be correspondingly elevated.

Control of Fragments.

As a general principle the fragments should be reduced to a normal position and a splint applied which will maintain them in that position. This is frequently possible in jaw fractures, but it is also frequently impossible; for instance, in fractures of the upper part of the ascending ramus, the condyle, and coronoid no form of splint will control the upper fragment, and it then becomes necessary to align the anterior fragment with the displaced posterior one. Also in severe comminutions it is impossible immediately to reduce all the fragments, since these are displaced in different directions by different muscles—reduction and control must proceed synchronously in these cases. Speaking generally, in order to effect control some appliance or surgical means should be adopted which will act in a contrary direction to the displacing forces. In this paper it is not proposed to discuss the simpler forms of fracture nor to enumerate the well-known types of splint. When teeth are present in both or all the fragments, control becomes a comparatively simple matter, but the classes of cases in which control becomes more difficult are: (*a*) those in which teeth are absent from one or both fragments; (*b*) severe comminutions, with involvement of the teeth.

But before passing to consider these conditions I should like to offer a criticism of two methods of temporary control at present being used. 1. The four-tail bandage as usually applied, with a pull almost directly backwards, only serves to exaggerate displacements already present. Fig. 1 shows how a four-tail may be used without doing much harm. 2. The Hammond splint fails to control upward and downward displacement of fragments, tends to increase the looseness of any already loose teeth, does not prevent the lateral tilting and swinging of fragments, and, moreover, requires as long a time and as much skill to apply as a more efficient splint.

The control of the posterior fragment, either when the fracture is posterior to the last molar or when the posterior fragment is edentulous, is always a matter requiring special treatment. When the posterior fragment is edentulous some form of saddle can usually be fitted to a metal cap splint.

FIG. 1.—An improved method of applying the "four-tail." The vertical portion is broad and very tight, the horizontal being narrow and comparatively slack.

The saddle portion can either be rigid and reduction accomplished forcibly under an anæsthetic, or it may be attached by screws which will permit of a gradual reduction. When the fragment is just anterior to the masseter muscle and posterior to the last molar the control of the posterior fragment becomes somewhat difficult, since there is not sufficient horizontal ramus available to which a saddle can be attached. To overcome the difficulty I have devised two simple methods.

(*a*) When a suitable upper molar is available an *angle band* is fitted carrying an extension posteriorly which presses on the anterior border of the ascending ramus, and so prevents it being drawn forwards and upwards. (Fig. 2.)

(*b*) *The Zygomatic Screw.*—This is the most certain method of controlling any badly displaced posterior fragment. The posterior fragment is pulled down into position forcibly, preferably by forceps introduced through the wound, and is held in position by an assistant. An incision is made over the zygoma, a hole is drilled through the latter and the coronoid process, and a long thin screw (¾ in.) is passed through both; if the other end impinges on the skull so much the better. No movement of the upper fragment is possible. In some individuals the coronoid process does not reach up under the zygoma; this does not very much matter, since then the screw is passed through the dense temporal fascia and muscle and effectually prevents movement. This method is very suitable for immobilising the posterior fragments in bone grafts at the angle of the mandible. (Fig. 3.)

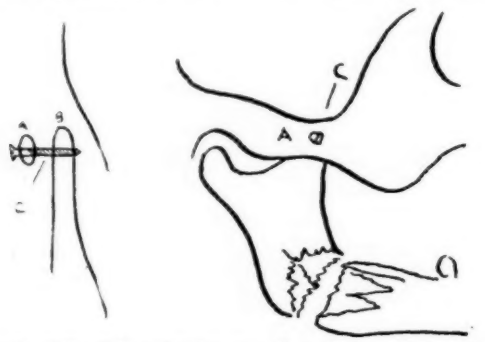

FIG. 3.—Left: Antero-posterior view (in section). Right: Lateral view. A, zygomatic arch. B, coronoid process of mandible. C, screw.

The Gutter-splint.—This is a modification of the Kingsley splint which I have used for some years chiefly as a temporary splint, but occasionally as a permanent one. It consists of a gutter shaped to the dental arch, capable of fitting over all the teeth if present, and filled with modelling composition.

FIG. 2.—Extension from an "angle-band" posteriorly to control and prevent the upward displacement of a posterior fragment. (Tracing from skiagram.)

Attached to the metal gutter are two arms which project out of the mouth and lie along the cheeks. The splints are made in three sizes and one is selected which approximately fits the case. (Fig. 4.) The displacement of the upper or lower jaw fragments are temporarily reduced by digital pressure, the composition warmed and the splint pressed into place, the arms being held in place by a bandage passing either above the head or below the chin. A number of these were sent out with the New Zealand Expeditionary Force for use in the field, and if such temporary splints were more frequently used we should not get the exaggerated displacements and deformities which we sometimes see, and a considerable amount of pain would be saved to the patient and many secondary hæmorrhages avoided. I believe this is the most comfortable form of splint to use in the control of downward displacement of upper jaw fragments. Metal bands round the head are extremely uncomfortable and painful, and are, moreover, much more difficult to immobilise.

FIG. 4.—The gutter-splint. The groove or gutter is filled with dental modelling composition.

FIG. 5.—Intermaxillary wiring for fractures of the ascending ramus, condyle, or coronoid process. (Tracing from skiagram; upper jaw edentulous.)

FIG. 6.—Bolt of stout wire passed through lower border of mandible to control symphysis fractures. The apparatus seen above is part of an external nasal splint. (Tracing from skiagram.)

FIG. 7.—"Screw-lever" splint for controlling comminuted fractures in the anterior region.

Fractures of the neck of the condyle and *coronoid process* require special consideration. In these cases, since it is impossible to control the posterior or upper fragment, the

lower or anterior fragment must be placed in such a position as to secure good alignment and apposition. If displacement is due entirely to muscular force the coronoid will always be drawn upwards and outwards and the condyle upwards, forwards, and inwards (by the external pterygoid muscle). This must be determined, however, by skiagrams, since in aeroplane crashes, for instance, the displacing force of the crash may be much greater than the pull of the external pterygoid or the latter muscle may be avulsed.

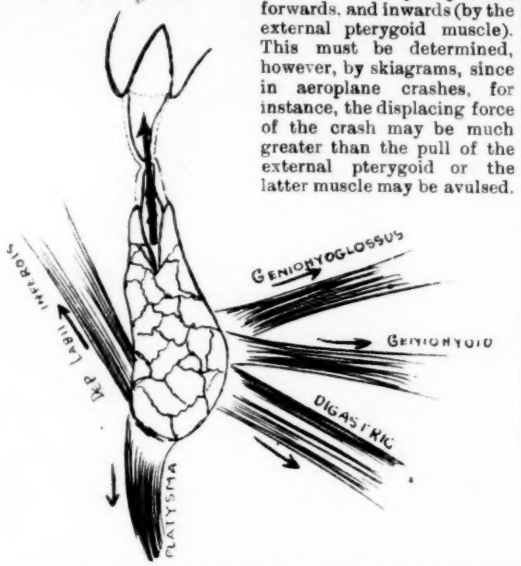

FIG. 8.—Diagrammatic view of action of muscles for comminuted fractures when the lower teeth are simply suspended to teeth in the upper jaw.

If the condyle is in the usual position the anterior part of the mandible should be brought into and secured in as high and forward a position as possible, at the same time bringing the chin a little towards the injured side. This is desirable because the upper fragment is displaced inwards by the external pterygoid muscle, and by rotating the chin slightly towards the injured side the fractured neck is made to move inwards. This may best be done, I think, by intermaxillary wiring, either by silver wires around the teeth, or if, as frequently happens, the upper jaw is edentulous, four holes are drilled, two in the upper and two in the lower jaw, at about the level of the roots of the incisor teeth, crossed silver wires are passed through, and the mandible thus laced up firmly to the maxilla in the desired position. The same method of control applies to fractured coronoid. (See Fig. 5.)

Fractures at the symphysis are sometimes liable to non-union. This is due to separation of the lower borders of the fragments owing to the outward pull of the elevator and depressor muscles, chiefly the digastrics. A dental metal-cap splint may be put on and the teeth brought together, but it is not observed whether the lower borders are at the same time approximated—rather do they naturally tend to be separated by the approximation of the teeth, and if, unfortunately, the teeth in the immediate fracture area are also extracted this approximation of the upper border and separation of the lower border tends all the more to occur.

I have endeavoured to eliminate this source of error by avoiding dental splints in this kind of deformity and using either intermaxillary wiring or by bolting the fragments together with a metal bolt passed through the lower border of the mandible posterior to the symphysis. (See Fig. 6.) This appeals to me as a rational method since it acts in a direction exactly opposite to the displacing forces, and moreover the teeth can be retained in situ, antiseptic treatment satisfactorily carried out, the jaw as a whole remaining functional.

The Control of Comminuted Fragments.

Before the war I believed, as the result of experience, that it was necessary to remove all small comminuted fragments and teeth in the vicinity of the fracture. In the great majority of gunshot wounds we are seeing to-day this is not necessary. The reason for the difference being, I think, that in civil practice fractured jaws frequently occur in unhealthy, cantankerous, and alcoholic individuals, whose resistance and reparative powers are not very high. The majority of our present patients are, however, extremely "fit," respond wonderfully to treatment, and one can retain fragments and adopt a much more conservative line of treatment than one could for civilians.

In comminuted fractures, however, there is frequently much displacement of small fragments owing chiefly to the unbalanced action of attached muscles. Especially is this so in the anterior region of the mandible. The teeth are much loosened and there are brought into existence numerous "dead spaces" around the fragments.

Upon the recognition of the necessity for the elimination of these "dead spaces" depends the successful conservative treatment of such cases. There is no reason why small fragments of bone or a tooth should not survive partial detachment and a certain amount of infection, provided they are relatively immobilised within reasonable time and not allowed to be more or less permanently bathed in pus.

If a simple dental splint is put on, the teeth are immobilised and not the fragments, with the result that the fragments are like floating islands in a sea of pus.

Believing this to be so, I some time ago devised a splint (Fig. 7) (which for want of a better name I call the "screw-lever" splint) and which I believe controls both teeth and fragments in comminuted fractures. It consists of a cap fitting over the retained teeth with arms passing out of the mouth and under the mandible; to the ends of these arms is hinged a padded lever which, by being depressed by a screw anteriorly, is raised in an upward and forward direction posteriorly.

In use the teeth are pressed downwards into their sockets, the fragments are pressed upwards, and are clamped between the cap and the pad with an increasing pressure; the teeth and fragments are both controlled and dead spaces eliminated.

A modification of this splint may be used for controlling depressed fragments at any point along the lower border of

FIG. 9.—Comminuted fracture. Lateral and anterior aspect of mandible. Treated by "screw-lever" method. (Tracing from a positive skiagram.)

FIG. 10.—The same after use of screw-lever splint. Fragments reduced. Some rarefaction in central area. (Tracing from a negative skiagram.)

FIG. 11.—The same after removal of splints and normal use of jaw for a month. Consolidation is obviously taking place, and the teeth are in situ. (Tracing from a negative skiagram.)

the mandible. Care must always be taken, however, that the composition pads do not interfere with free drainage and irrigation.

An important asset which this means of control possesses is that the mandible remains functional and is not immobilised as a whole. Function is the best stimulus to bone production which we possess, and one which we might utilise much more fully. Also, I think we would do well to adopt Lucas-Championnière's teaching with regard to fractures—a principle which, so far as I am aware, has not yet been purposely applied to jaw fractures. I have two cases at the present time which illustrate this point in a remarkable manner.

The first is a patient who was awaiting bonegraft with a definite loss at the left angle, and had a double Gunning splint on for some months; something more than a month ago the site of loss was curetted, the screws taken out of the splint, and movement allowed. He is now getting a bridge of osseous tissue thrown out across the gap, and the patient himself says the jaw is as firm as ever it was, and that he can eat anything; the radiographic report is that union has taken place.

The second case is one admitted during the rush in the early part of April, with fracture in the right pre-molar region. Angle bands and expansion arch were put on as a temporary splint, and he was sent out to an auxiliary hospital. For some reason I did not see him for a fortnight, when it was found that the ligature wires to the arch had slipped, the posterior fragments was displaced outwards slightly, but that firm union was taking place. In less than a month firm osseous union was complete, despite the teeth in the fracture line on each side being retained.

Many teeth and fragments are sacrificed in the treatment of jaw injuries which might well be saved for the patient and obviate the subsequent supply and use of artificial dentures. The reason being, I think, that almost entirely "interdental" or suspensory types of splints are used. The lower jaw is simply suspended by means of its teeth to teeth in the upper jaw. The depressor muscles are being constantly used, in fact, they are the only ones used, the elevator muscles being thrown out of action by the splint, and consequently the jaw fragments are pulled downwards and backwards away from the suspended teeth with the frequent result of non-union, and the presence of the teeth is blamed for the result. (Fig. 8.) The extraction of the teeth frequently gives beneficial results by providing drainage, but I suggest that a more surgical procedure is to provide submental drainage and a form of splint which will clamp the upper and lower borders of the mandible, thus relatively immobilising the fragments whilst allowing mobility to the saw as a whole. (Figs. 9, 10, 11.)

Submandibular Splinting.

A method which I have employed and found useful in edentulous cases is that of applying the interdental splint method to the lower and external border of the mandible. Kasanjin's method of suspension of fragments is similar in principle, but is really the submandibular method reversed.

The method consists in inserting screws into the lower border of the mandible through small incisions in non-infected areas; the heads of the screws project through the skin an equal distance to that which they are screwed into the bone. The heads of the screws then serve the same purpose as teeth for the fixation of a splint. An assistant reduces the displacement from within the mouth and stout nickel-silver wires are bent round to fit against the screws and laced into position with ligature wire. (See Fig. 12.) A double vulcanite Gunning splint may be used as an additional support, but I do not regard it as satisfactory by itself in such cases, since it depends for its efficiency entirely on the tightness of a four-tailed bandage and does not therefore relatively immobilise the fragments; but it does effectively prevent function, whereas the submandibular screw method allows of normal function of the jaw as a whole.

In later stages when fractures have been neglected for some unavoidable reason, another factor, that of *fibro-cicatricial contraction* along the track of the original wound, tends to either produce fresh displacements or to exaggerate old ones.

There are two methods of dealing with this condition: (1) the immediate and surgical; (2) the gradual and mechanical. Of the two I think the first is always best when practicable. Time is saved by opening up the fracture-lines, removing the forming cicatrix, and freshening the bone-ends and wiring, or the immediate application of splints to a pre-determined position may be used. Fresh bone formation is thus stimulated. A similar result may be obtained by bending or stretching the cicatricial tissue connecting the fragments, but it is a comparatively slow process, and there is no stimulus to bone formation; indeed, the bone-forming areas of the fragments may have been totally

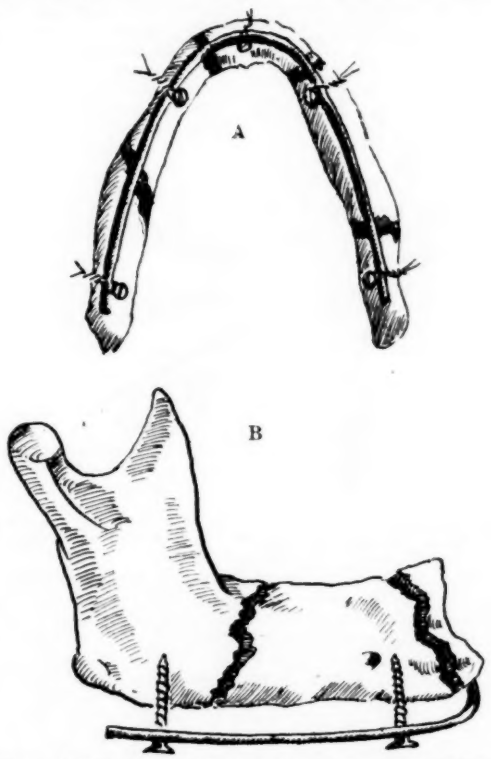

FIG. 12.—Method of submandibular splinting for small fragments in edentulous jaws. A, viewed from below. B, viewed from the side.

occluded and osseous union may never occur. Nevertheless, in some cases it may be the wisest course when the patient's general condition and resistance does not warrant a severe operation.

I do not propose to describe in detail any of the methods which may be employed for the gradual reduction of old fractures; they are sufficiently well known and are all of what may be called an "orthodontic" type. I would only say that I believe the most useful, powerful, and least painful form of traction is given by the use of screws adjusted daily.

Conclusions.

General principles.—If one may draw conclusions from such a paper as this, I would say:—

1. That there is, or should be, no best method of controlling fragments. Each case should be treated individually, according to its requirements.

2. Control and not absolute immobilisation of the fragments should be the aim of any method of treatment.

3. The utilisation of function and perhaps slight mobility of the fragments from as early a time as possible is the best stimulus to union.

4. A conservative line of control should be adopted whenever possible—i.e., loose teeth and small fragments should be retained and controlled with function rather than be sacrificed to obtain possibly a quick but inferior result. This is in accord, I think, with the trend of orthopædic surgery at the present time.

I have to thank Colonel W. H. Parkes, D.M.S., N.Z.E.F., for permission to publish this paper. Most of the methods described were evolved when I was in charge of the Jaw Department at No. 2 N.Z. General Hospital, Walton-on-Thames.

HÆMOGLOBINURIA (BLACKWATER FEVER).

OBSERVATIONS ON A TRANSIENT FORM OCCURRING AMONGST THE TROOPS IN MACEDONIA.

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Introduction.

SINCE June, 1916, we have been on the staff of a British general hospital attached to the Royal Serbian Army, and during that period have had the opportunity of seeing 46 cases of blackwater fever. Of these cases 13 occurred amongst the personnel of the hospital and other British units attached to the Serbian Army in the same area. During the same period a neighbouring British general hospital also treated some 30 cases. Of our cases, 38 occurred between Oct. 11th, 1917, and March 23rd, 1918.

The cases varied much in severity, some showing transient attacks of hæmoglobinuria only, others presenting marked diminution of urine or even complete and fatal suppression. In a few instances death was the result of uræmia associated with almost complete suppression of urine (1½ to 2 oz. of urine in the 24 hours), despite freedom from hæmoglobinuria for two or three days before death. With reference to amount of urine two clearly differentiated types of case were observed: 1. Those associated with polyuria which invariably recovered. 2. Those associated with diminution or suppression of the urine, some proving fatal.

The object of this paper is to draw particular attention to the cases showing a transient hæmoglobinuria. We regard the recognition of the danger of these cases as of prime importance for two reasons. 1. When hæmoglobinuria has once occurred a recurrence is very probable, and a transient case may subsequently develop a severe or even fatal attack. 2. Experience leads us to believe that all forms of blackwater fever will be more prevalent in the winter of 1918-19 than they were in the two preceding winters.

We have not been able to make any detailed study of the literature of the subject. Manson[1] appears to recognise the transient cases but does not lay stress upon them. A malarial hæmoglobinuria has been described by some writers and regarded as distinct from blackwater fever. Our view is that the transient cases we have seen are true blackwater fever in a mild form, and that, except in degree of severity, there is no difference between them and the severe and fatal forms of blackwater fever. All grades between these two extremes have been met with. We are also of opinion that the disease is not directly due to quinine, and we have seen no cases which could be regarded as quinine hæmoglobinuria.

Symptoms.

In these mild cases the symptoms observed are: nausea or vomiting, shivering, or even a definite rigor, followed by sweating; sometimes pain or a dragging, heavy sensation in the loins; usually some degree of jaundice; the passage of port wine or porter coloured urine, which in a few hours becomes normal in appearance.

These symptoms may be slight in degree or moderately severe, but are never as severe as in a sustained case of blackwater fever. They may be no more grave than those accompanying a mild malarial paroxysm, and but for the colour of the urine advice would very likely not be sought in many instances. Indeed, it is quite possible that the condition may be overlooked altogether. For instance, one patient (No. 0/553), convalescent from malaria, complained that he had passed black water during the night—a true statement—and also said that he had not had a rigor or feeling of cold, or even headache, backache, or sickness. His temperature had been 99·2°, and the night nurse reported that he had shivered and afterwards perspired freely. Such an example shows that the general symptoms may be trivial in nature or even absent.

Actual vomiting, also pain in the back and loins, are not common. The jaundice is variable in degree, but never severe, and is of the hæmolytic type. None of these cases have shown more than a moderate grade of fever; the highest temperature recorded was 103·2°; as a rule when the urine cleared the temperature became afebrile and remained so unless malarial recurrences occurred during convalescence.

The urine at the onset of an attack varies in colour from a reddish madeira to a deep port-wine shade which, in reflected light, appears almost black.

After being allowed to stand for a short time a light brown sediment is deposited, leaving the supernatant urine clear. The amount of deposit is usually considerably less than in the severer forms of blackwater fever. This appearance rapidly passes off, and after two or three specimens showing hæmoglobin colouration the succeeding urine looks normal to the naked eye.

Thus case No. 16,186 passed dark "port wine" urine for the first time in the afternoon; the next specimen, obtained during the night, although lighter in colour, still contained hæmoglobin; but the third specimen at 9 A.M. on the following morning was free from hæmoglobin.

The patient already mentioned (No. 0/553) passed three specimens of madeira-coloured urine between 1 A.M. and 8 A.M.; no more urine was passed until 4 P.M. the same day, and this contained no hæmoglobin.

In our series of cases there has never been any marked diminution in urine passed. In some cases a transient polyuria has been present; thus in the case just quoted 53 oz. were passed between 4 P.M. (the first normal specimen) and 8 A.M. the next morning.

Chemical and microscopical examination of the urine showed a remarkable sequence of changes.

The hæmoglobin, at first giving a very marked reaction, rapidly disappears. The amount of albumin, considerable in the first specimen, rapidly disappears in succeeding ones, but rather less rapidly than the hæmoglobin. Microscopically, the first specimen usually shows numerous casts—granular, hyaline, and epithelial—also many epithelial cells, in addition to a varying amount of granular amorphous debris, and occasionally a few red blood cells. These casts and epithelial cells rapidly disappear from the urine in succeeding specimens, as will be seen by a reference to the details of urinary findings. This sequence is so striking a feature of the transient form that, in a case admitted to hospital with a history of having passed black water, the rapid disappearance of casts and albumin from the urine may be taken as confirmatory evidence of recent hæmoglobinuria. Indeed, we are inclined to go further and say that, in this country, this sequence is sufficient to diagnose the occurrence of hæmoglobinuria even in the absence of any history of that symptom.

To explain this series of changes it would seem that the "toxin" of blackwater fever, (1) by its action on the red blood cells gives rise to hæmolysis with resulting hæmoglobinæmia and hæmoglobinuria, and (2) by its direct action on the kidney produces necrotic changes in the tubules, followed by the throwing off of epithelial casts.

In addition to the action of the toxin directly on the renal tissues, renal functions are profoundly influenced by the damaging effect of the passage of hæmoglobin and waste corpuscular debris. Both factors are probably responsible for the marked circulatory obstruction evidenced by the extreme capillary congestion. These tubular and congestive changes are well marked in some of the fatal cases of blackwater fever. The throwing off of the cast is the first step in the process of the repair of the kidney lesion.

In the transient cases we are describing, the "dose" of the toxin is a small one; repair begins at once, for casts are very obvious in the first specimen of black water passed. In the severer cases which recover casts are at first seldom seen or are seen only in small numbers; later they increase in number until they reach a maximum, when they may be present in enormous numbers, and then gradually diminish as the case improves, finally disappearing altogether. It is rare to find casts in cases which pass small amounts of urine and eventually prove fatal. The presence of large numbers of casts is therefore of much importance in prognosis.

Details of the urinary changes in three cases of transient hæmoglobinuria are given. Cases No. 16,186 and No. 0/553 have been referred to above. Case No. 0/551, a Greek doctor, was sent in by a French medical officer as a case of blackwater fever. He had passed black water from noon on the previous day until 10 A.M. on the day of admission. No hæmoglobinuria occurred afterwards but the urinary changes provided confirmatory evidence of his history.

Urinary Findings in Cases of Transient Hæmoglobinuria.

CASE NO. 16,186.—4/2/18, 3.30 P.M. Urine almost black, sp. gr. 1023, acid; albumin, +++; guaiac test, +++. Deposit: Casts, *many* granular and a few granular epithelial; cells, epithelium; R.B.C., none.

4-5/2/18, night. Urine red brown, sp. gr. 1020, acid; albumin, +++; guaiac test, +; casts *fewer* in number, same varieties; R.B.C., none.

5/2/18, 9 A.M. Urine, no naked-eye Hb, sp. gr. 1015, acid; albumin, +; guaiac test, 0; *no casts*: some pus cells: R.B.C., few.

[1] Manson: Tropical Diseases (sixth edition), p. 286.

CASE No. 0 553.—8 3 18, 1 to 5 A.M. Urine (clear) madeira, sp. gr. 1030, acid; albumin, +++; guaiac test, +++; bile pigment, 0. Deposit: Few granular and fine hyaline casts; some renal epithelial cells and leucocytes; R.B.C., none.

8 3 18, 4 P.M. Urine, no naked-eye Hb, sp. gr. 1010, acid; albumin, slight cloud; guaiac test, 0; casts, none; few renal epithelial cells and leucocytes; R.B.C., none.

4 P.M. to 8 A.M., 8 3 18–9 3 18. Urine normal, sp. gr. 1018, acid; albumin, slight cloud; guaiac test, 0; some granular casts; renal epithelial cells.

14 3 18. Urine normal, sp. gr. 1030, acid; albumin, 0; guaiac test, 0; no casts; no cells; no R.B.C.; amorphous urates.

CASE No. 0 551.—23 2 18 (on admission). Urine yellow orange, sp. gr. 1020, acid; albumin, ++; guaiac test, 0; bile pigment, 0. Deposit: Casts *abundant*, granular, hyaline, epithelial; *many* renal epithelial cells and leucocytes; R.B.C., very few; mucus.

25 2 18. Urine normal, sp. gr. 1012, acid; albumin, +; guaiac test, 0; casts, *some* granular and hyaline, *few* degenerated epithelial; *scanty* leucocytes and renal epithelial cells.

28 2 18. Urine normal, sp. gr. 1010, acid; albumin, very faint haze; guaiac test, 0; casts, *few* hyaline and finely granular; cluster or two of leucocytes; R.B.C., none; cell debris.

Albumin. +++, heavy deposit. ++, dense cloud. +, definite cloud.

Guaiac test. +++, very marked reaction. ++, marked reaction. +, definite reaction.

Associated with hæmoglobinuria and the symptoms already mentioned, the spleen is found to enlarge and not infrequently become tender. In some cases the liver also enlarges, and there may be tenderness over the gall-bladder region. All these signs disappear shortly after the hæmoglobinuria stops.

Convalescence, if not complicated by malarial relapses, is, as a rule, rapid and not much more prolonged than after an attack of malaria. A certain degree of anæmia occurs, but it is not marked. In most of the cases, however, convalescence was retarded by malarial relapses, but without further hæmoglobinuria.

Etiology.

In the present paper we shall only deal with certain points in connexion with this series of cases, but the remarks apply also to blackwater fever in general.

(*a*) *Associated with other diseases.*—Every case gave a history of repeated attacks of malaria, and many suffered from malarial relapses whilst in hospital.

Some were under treatment for, or convalescent from, malaria at time of onset of hæmoglobinuria. No case of blackwater fever has been seen in association with any other disease, with two possible exceptions, which were at the time under treatment for dysentery and malaria. (One of these occurred in the present series—viz., Case No. 16,816.) Examination of the blood for malarial parasites was usually negative. Of the 9 cases of this variety of blackwater subtertian parasites were present in one case only; another case showed scanty parasites of uncertain type, probably benign tertian. In the remainder no parasites could be found. One of the negative cases, however, showed hæmozoin pigment in the leucocytes, and benign tertian parasites were found in the blood in a malarial relapse (February, 1918) during convalescence.

(*b*) *Length of time exposed to malarial infection before hæmoglobinuria occurred.*—We are informed that malaria is not a common disease in Serbia, and that it is of a mild type.

A large proportion of malarial patients admitted to the hospitals attached to the Royal Serbian Army contracted the disease in the summer of 1916, when the re-equipped Serbian Army, recently landed from Corfu, was encamped in the neighbourhood of Salonika. The army took its place in the line early in August, 1916, and at that time there were many cases of malaria. All the transient cases and all except 8 of the more severe forms of hæmoglobinuria occurred in the winter of 1917–18, and it may therefore be assumed with a considerable degree of certainty that the Serbian cases had not passed through more than two severe malarial seasons. One of the transient cases occurred amongst the British troops attached to the Serbian Army, and he came out to Macedonia in June, 1917, and was therefore exposed to one malarial season only.

These two facts—namely, that all except 8 out of the 46 cases of blackwater fever occurred during the 1917–18 winter and that no transient cases occurred before this winter—we consider, justify our opinion (1) that an increase in blackwater fever amongst the troops in Macedonia may be expected in the 1918–19 winter; and (2) that a definite number of cases of transient hæmoglobinuria, precursors of the more severe attacks, have already very probably escaped, and may in the future escape observation. The increase of liability to blackwater fever associated with and, in all probability, favoured by continuous periods of residence in a malarious and blackwater fever country has been frequently noticed, and is now well recognised.

(*c*) *Topography, weather, &c.*—The cases were derived from one sector of the Serbian front, which occupies a position in a wide valley leading from the plain up to the mountains where the trenches were situated.

In both plain and valley malaria of a severe type is very rife. The incidence of the disease reaches its maximum during the five or six weeks between the middle of September and the end of October. The incidence curve of blackwater fever, on the other hand, did not begin to rise until October, reached its maximum in February, then fell quickly, and after April and throughout the summer kept very low. Most of the cases occurred during the colder part of the year, and there is no doubt that the condition, as in malaria, may be precipitated and aggravated by exposure to cold and fatigue. The influence of these factors is supported by the well-known effect of cold in producing an attack of hæmoglobinuria in cases of paroxysmal hæmoglobinuria. In many instances cold could certainly not be excluded, because falls of snow and hard frosts were frequent in the trenches during these months. In more than one case, however, this factor could apparently be discounted because the attack occurred in quite warm weather, such as was experienced at times during the winter months of 1917–18, and amongst individuals living in the plain and not in the mountains.

(*d*) *Presence of a specific hæmolysin, &c.*—A certain number of experiments have been carried out by one of us (L. G. P.) to determine, if possible, the presence of a specific hæmolysin.

The difficulties in demonstrating a specific lysin are great; it is highly probable that by the time the hæmoglobin appears in the urine the lysin has done its work and disappeared from the blood. This would seem to be so particularly in the transient forms of hæmoglobinuria, and even in those cases which show a naked-eye hæmoglobinæmia at the time of the experiment the same may be true. Hæmolysis is, of course, taking place coincidently with the rigor, vomiting, and raised temperature; and if the serum were taken at this early period better results might be obtained; these symptoms, however, frequently occur before the patient comes into hospital or are thought to be the onset of an ordinary malarial attack. Up to the present we have not been successful in obtaining blood serum in the initial stage of an attack, and we have not obtained any evidence of a specific lysin.

The sera have been tested against the washed red blood cells of individuals in hospital for other conditions than blackwater fever, and control experiments have also been done by putting sera of normal individuals up against the washed red blood cells from cases of blackwater fever.

As a rule a 10 per cent. dilution of sera and 10 per cent. dilution of red cells were used, but in a few cases undiluted sera were also tried against a 10 per cent. dilution of red cells. The hæmolytic tubes containing sera and cells were put into the incubator at 37° C. for one hour, being shaken about every 10 minutes; afterwards they stood outside the incubator for 12 hours. As we had no ice-chest this was timed so that the tubes were outside the incubator all night, for the nights were frosty. The sera of blackwater fever patients were also tested against the citrated blood of these normal individuals in order to see if agglutination of the red cells took place. Sufficient serum and cells for these tests can be obtained from 1 c.cm. of blood; this amount of blood can be easily removed from the patient's vein with a hypodermic syringe and needle without doing the least harm to the worst case of blackwater fever.

The sera of five of the transient cases were tested in this manner.

In two cases only was there even the slightest degree of hæmolysis and in each of these the tinge of hæmolysis occurred with one group of normal cells only. It is perhaps noteworthy that these two blackwater sera showed marked agglutination of the red cells when tested against the citrated blood from which this group of cells was obtained.

Marked agglutination occurred in some of the other experiments, but no hæmolysis.

A rather interesting result was obtained in another case. The point has probably been already observed, but it throws a little light on the changes occurring in blackwater fever. The specimen of urine passed by the patient (No. 0 553 before the blood was taken contained hæmoglobin; the next specimen passed some hours later was free from hæmoglobin, but the blood serum showed most definite tinting with hæmoglobin (hæmoglobinæmia). The hæmoglobin free in the blood-stream had probably been dealt with by the liver and it was noted subsequently that the stools apparently contained an excess of bile pigment.

The fragility of the red cells in some of these cases was tested against varying percentages of saline and found to be normal. It is universally agreed, we believe, that the "fault" in blackwater fever does not lie with the red cells.

(*e*) *Relation between quinine and hæmoglobinuria.*—We have formed the opinion that quinine is not *the* cause of hæmoglobinuria.

We have seen cases where quinine had not been taken for weeks previous to the appearance of blackwater fever. Patients have been given quinine during the attack and no untoward results have occurred; moreover, several of the cases have shown typical malarial attacks during convalescence and have been treated with quinine in doses up to 70 gr. per diem without a return of blackwater. Outside our own experience, however, there would appear to be some evidence that quinine may in very rare instances act as the determining agent in precipitating an attack of blackwater fever comparable, as already suggested, to the effect of exposure to cold, over-exertion, and fatigue. We are of opinion, however, that the possible existence of such cases should not influence treatment, for, even if they do exist, they are extremely rare.

We tried the effect of adding red blood cells from cases of blackwater fever to solutions of common salt in strengths of 0·05 to 0·9 per cent., in each of which was dissolved quinine bihydrochloride in strengths which we estimated would represent the concentration of quinine in the blood when administered by the intravenous method in doses of 10 to 15 gr. It was found that in some cases hæmolysis did not occur with strengths above 0·3 per cent.—i.e., the normal limit, but in other cases hæmolysis occurred with all strengths up to 0·9 per cent. It was therefore thought possible to separate out two classes of blackwater fever—namely, those in which quinine could be given, and those in which its action would be harmful, and that in this way the test would prove an important guide to treatment. Later, however, we obtained similar results in patients not suffering from blackwater and actually taking quinine at the time. It was also found that in cases of hæmoglobinuria whose red cells showed hæmolysis in all strengths of the solution, the quinine given caused no increase in the amount of hæmoglobinuria, and that after an attack had passed off subsequent administration of the drug did not produce a recurrence.

In concluding our observations on etiology, we would add our belief that blackwater fever is due to malaria, although not necessarily associated, at the time of its occurrence, with a malarial paroxysm, and that the true causal factor of the blackwater fever attack must be looked for in connexion with the toxins of the malarial parasite.

Certain work has been done on the malarial toxins, but there still remains a considerable field for research into their nature. The suggestion that the hæmolysis is due to supersensitisation of the red blood cells does not, in our opinion, give a satisfactory explanation of the fatty degeneration of the myocardium and the necrotic changes found in the liver and spleen in fatal cases. Nor does this theory explain the very marked degenerative and tubal changes or the extreme congestive disturbances which occur in the kidney in such cases. We consider the uræmia and anuria are due to these renal changes rather than, as is usually held, to the mechanical effect of the blocking of the tubules with hæmoglobin.

Further, these changes much resemble those found in other severe toxic conditions—e.g., eclampsia—and afford strong presumptive evidence of the presence of a toxin in the blood. This toxin apparently differs from the ordinary malarial toxin, since in deaths from malaria the spleen, liver, and particularly the kidneys, do not show the striking changes seen in blackwater fever. Certain facts appear to point to this special toxin being elaborated in the intervals between malarial attacks, for hæmoglobinuria frequently occurs unaccompanied by any actual malarial paroxysm.

Treatment.

All our patients were treated at the commencement of their illness as if suffering from severe blackwater fever, but when it was seen that the case was a transient one treatment was modified accordingly.

Warmth, absolute rest in bed, administration of a saline aperient, and copious drinks of lemon water, barley-water, soda-water, &c., were ordered. The only food allowed was milk, and patients were encouraged to take at least 5 pints of fluid in the 20 hours; some, indeed, drank as much as 8 pints in that period. Some of the cases received rectal salines, 5 oz. of normal saline being given every two hours, or 10 oz. every four hours. These were, however, stopped in the course of a few hours when it became obvious that the case was a transient one.

At the end of 48 hours the strict milk dietary was relaxed, and milk pudding, bread-and-milk, jelly, &c., were allowed. The diet was further increased *pari passu* with the improvement in the urinary symptoms, which usually cleared up so rapidly that the patient soon reached a full diet.

Quinine was given, not as a routine measure, but only if evidence of active malarial infection was shown, either by finding parasites in the blood or by the development of malarial symptoms following on, or in addition to, the hæmoglobinuria.

When quinine is necessary it is, perhaps, best administered intramuscularly, but it has also been given by the mouth or, occasionally, by the rectum, 5 gr. being added to each rectal saline. Quinine sulphate has been given by the mouth and the bihydrochloride by the two other methods.

Quinine amblyopia is stated to be more common in blackwater fever than in malaria, and therefore it has been recommended that great care be taken in determining the dosage of quinine in this disease; whilst not disputing this point, we think that some of the visual symptoms may have been due to retinal hæmorrhages, such as have been observed in certain of our cases by our colleague, Captain W. Niccol, R.A.M.C., ophthalmic specialist to the hospital. During the hæmoglobinuria we have not given more than 45 gr. in the 24 hours, but in the relapses of convalescence we have given 60 gr. daily, and in one case of a severe relapse 70 gr. a day were given on two successive days.

During convalescence a generous diet was ordered and iron and arsenic given.

Convalescent treatment was continued for a longer period than for an ordinary malarial attack. The period of absolute rest in bed should be about ten days; some of our cases, however, were up before that length of time had expired, because it is almost impossible to keep a Serb patient in bed when he is feeling anything approaching well.

As previously stated, malarial relapses occurred during convalescence in nearly all the cases and were treated as ordinary malarial attacks.

A careful watch should be kept on the urine during these relapses on account of the possible recurrence of hæmoglobinuria. All cases after recovery from an attack should be removed from a blackwater fever area, and, if possible, evacuated from Macedonia owing to the risk of recurring and more severe attacks of blackwater fever.

Prognosis.

The prognosis of the actual attack of transient hæmoglobinuria is invariably good; indeed, as stated above, the symptoms may be quite trivial, and most cases would recover even if no treatment were received. The outlook, however, may be grave in a patient already seriously debilitated by previous malaria or dysentery. In the only case in our series which gave us any anxiety there was marked debility from recent malaria and dysentery at the time the hæmoglobinuria occurred; after three days, however, the patient made a rapid improvement and was soon out of danger.

As for their future prognosis, we believe that these cases are liable to recurrences of hæmoglobinuria, especially if they remain exposed to malarial infection. Moreover, in all probability these recurrences will prove more severe than the original attack. Judging from the cases we have seen, no permanent damage is done to the kidneys by these transient attacks.

Conclusions.

This paper has been written to draw particular attention to these cases of transient hæmoglobinuria for the following reasons:—

1. The condition is frequently a slight one and may escape notice unless looked for; but apart from its mild character it is in all respects the same disease as blackwater fever and should so be regarded. All varieties, including intermediate cases between the transient and the severe and fatal forms of blackwater fever, have been seen.

2. Transient hæmoglobinuria is very likely to be the precursor of more severe recurrences.

3. It is highly probable that the transient cases and all other forms of blackwater fever will be more common among the troops in Macedonia during the winter months of 1918–19 than in previous winters.

Finally, our thanks are due to Colonel S. F. Clark, A.M.S., the officer commanding the hospital, for allowing us to make use of these cases; also to our colleagues, Captains H. C. Nickson and C. G. Teall in particular, for their help in the diagnosis and treatment.

Macedonia, May, 1918.

OUTBREAK OF TYPHOID FEVER IN TORRY, ABERDEEN.—For the last three weeks the notifications of typhoid fever from Torry, Aberdeen, have been 15, 28, and 12. Dr. Matthew Hay, medical officer of health for Aberdeen, states in last week's report that it is now practically certain that many of the cases are traceable to an infected milk-supply.

A NOTE ON

THE SUSCEPTIBILITY OF THE ANTI-SCORBUTIC PRINCIPLE TO ALKALINITY.

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THE main sources for the supply of our antiscorbutic requirements are certain vegetables and fruits, most of which are cooked before they are eaten, although a certain proportion is consumed raw, especially in the summer. In the winter very little, if any, fresh uncooked vegetable is eaten in this country, but unpreserved raw fruit is usually within the reach of most. During the forthcoming winter, however, owing to the unsatisfactory fruit crops, it may be anticipated that the main source of antiscorbutics in our diet will be found in cooked vegetables, thus leaving us dependent on a rather less profuse supply of this dietary essential than is customary in normal times. Without anticipating any alarming consequences, it will nevertheless be advisable to bear this point in mind.

The object of this note is to describe a few experiments that form a part of an inquiry in which we are now engaged, which reveals a fact, in our opinion, of practical as well as of theoretical significance. The observation in question discloses the extreme susceptibility of the antiscorbutic factor to alkalies.

The most convenient way of testing the antiscorbutic potency of a substance is on guinea-pigs. These animals, as is well known, if kept on a diet of oats, bran, and autoclaved milk, succumb to scurvy within a period of 3–4 weeks. Any antiscorbutically active substance given in addition to this scorbutic diet will either delay or prevent the onset of scurvy, according to the potency of the dose. It is found that a daily addendum of 3–5 c.cm. of freshly expressed orange juice keeps a guinea-pig in good condition.

In our first experiment we administered daily doses of 3, 5, and 7 c.cm. of orange juice made neutral to phenolphthalein respectively to three guinea-pigs, which were kept on a scorbutic diet. All these animals throve well for 78 days, gaining in weight. At the end of that period they were chloroformed, and at the post-mortem examination no scurvy was observed. When, however, the orange juice was made N/20 alkaline with NaOH and stored for 24 hours in the cold room before administration daily doses of 3, 5, and 7 c.cm. did not prevent or delay the onset of scurvy. This result is not due to the effect of the alkali on the animals, for when the N/20 alkaline orange juice, after having been stored for 24 hours, was made N/20 acid with HCl before being given to the animals the effect still persisted. In this instance, as in the previous experiment, daily doses of 3, 5, and 7 c.cm. did not prevent or delay the onset of scurvy.

A much less drastic treatment was also found to be fatal to the antiscorbutic factor. Another set of three pigs received daily 3, 5, and 7 c.cm. of orange juice made only N/50 alkaline with NaOH on the day of feeding. All the animals died of scurvy after a slightly prolonged period, thus showing that the juice, after being made alkaline, retained only a trace of its antiscorbutic activity.

These experiments show definitely that alkalinity has a very deleterious effect on the antiscorbutic potency of orange juice. Theoretically this observation invites further investigations; but, as we have already pointed out, in view of the present food position it is of some practical importance. Most antiscorbutic vegetables are either neutral or very slightly acid, and any culinary manipulation which entails alkaline treatment, even to a slight degree, will be instrumental in the destruction, if not of the entire, at least of a significant part of the antiscorbutic potency of such vegetables. At a time when our need for antiscorbutics will have to be satisfied only by the consumption of cooked vegetables this becomes a problem of importance, and an immediate elucidation of the matter to the lay public becomes very desirable. At any rate, the point merits the attention of those interested in dietetics.

THE PROGNOSIS IN "TRENCH" NEPHRITIS.

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ALTHOUGH a number of reports have been published upon the clinical course of that particular form of renal disorder so rife among the British Armies in France and usually known as "trench" nephritis, there are up to the present comparatively few observations upon the later progress of these cases. With a view to throwing some light upon the prognosis in this condition an attempt is made below to analyse the after-history of 50 of these patients up to periods of within 12 months from the onset of acute symptoms. The 50 cases form part of a series of 100 upon which clinical observations were made at a base hospital in France in the early months of 1917. It has been made possible to follow their course through the home hospitals and disposition by means of the scheme devised by the National Research Committee. At a later date it is hoped that a fuller report, showing the final condition of all the 100 cases, may be made possible through the same means.

Analysis of After-histories.

Mortality.—One death only is reported in this series of 50.

The cause of death in this case was scarlet fever, which developed two weeks after admission to a home hospital and a month from onset of nephritis. Fatal on 25th day from appearance of rash. This case was one of the mildest in the series. Œdema had disappeared by end of first week, and albumin from urine by eleventh day. At time of appearance of scarlet fever patient was convalescent. No P.M.; no record of condition of kidneys at death. No statement as to actual cause of death, whether from renal complications or otherwise, accompanied schedule of case.

The nephritis here, although it may have rendered the patient more than usually susceptible to the action of the scarlet fever toxins, cannot be regarded as the actual cause of death.

The prognosis with regard to life is very good.

Degree of recovery.—The schedules of the remaining 49 patients show their histories up to periods from the middle of the second to the end of the ninth month from the onset of the nephritic symptoms. They were universally filled in by the medical officers of the home hospitals, either on the actual settlement of the disposition of the patient or at a period in the history of the case when, although not actually made, it was evident what it would be.

Of the 49 cases, 23 are reported as having been discharged to the Command Depôt as fit for service. Six more are stated to have been transferred to homes or minor hospitals for the completion of convalescence, with every prospect that they also would become fit for the Command Depôt. In all these cases the recovery may be regarded as having been complete, and they will hereafter be referred to as "fit." That is to say, 29 out of 49, or approximately 60 per cent., of the patients made a return to complete health.

The prognosis as to perfect restoration to health is fair.

Of the remaining 20 cases, 11 were invalided from the Army, 4 were still undergoing treatment in hospital with no prospect of their ever regaining perfect health, and 5 had been classed C III. and sent to "employments." These will hereafter be all classed together and referred to as "unfit." In 40 per cent. of the series, then, the re-establishment of function was incomplete, and although not entirely destroyed the health of the patients was permanently damaged.

Influence of age on prognosis.—

In the clinical report on the original 100 cases[1] it was pointed out that the incidence in regard to age is spread with a rather striking evenness over the five-yearly periods between 20 and 40. The vast majority of the British soldiers in France fall between these ages, and it is not surprising that only one case occurred below 20, the age of this patient being 19. Considering, however, how comparatively few men of 41 or over were in 1916 on active service in France, it is rather suggestive that 8 per cent. of the cases fall into this category. The ages of incidence for the remaining 91 cases were as follows:—

Age 20 to 25	23 cases.	Age 31 to 35	23 cases.
,, 26 to 30	21 ,,	,, 36 to 40	24 ,,

[1] Clinical Observations on 100 Cases of "Trench" Nephritis, Captain S. C. Dyke, R.A.M.C., Journal of the Royal Army Medical Corps, February, 1918.

There are probably considerably more men in the British Expeditionary Force in France between the ages of 20 and 30 than between 31 and 40, and it is certainly worthy of note that the number of cases in the former group was only 44, as compared with 47 between the latter ages. There are, moreover, certainly fewer men in the field between 36 and 40 than between 20 and 25, and the fact that the figures for these two series are almost identical—24 as compared with 23—points to the same conclusion—namely, that the liability to the malady increases with age.

A further examination of the after-histories indicates that age is also an important factor in the prognosis. A consideration of the accompanying table will make this evident:—

		Age over 35.	Age under 35.
Becoming fit	29	4	25
Not becoming fit	20	11 (73%).....	9 (27%)

In the fit class only 2 patients occur of the age of 40 or over, and only 4 of 35 or over, and this despite that in it are contained 60 per cent. of the whole series. Of those patients who failed to become entirely fit 6 were over 40 and 11, or over 50 per cent., were over 35 years of age. Of 15 patients over 35 years of age 11, or 73 per cent., failed to become fit; of 34 patients under that age only 9, or about 27 per cent., failed to regain complete health.

The rough conclusion may be drawn that, whereas in persons under the age of 35 suffering from this condition the probabilities are strongly in favour of complete restoration to health, in those of over 35 the likelihood is that permanent damage will remain.

The prognosis becomes worse with increase in age.

Resulting disabilities.—Of the 20 cases returned as unfit or likely to become so the reasons for the decision as given by the medical officers filling in the schedules were as follows:—

Albuminuria persisting from second to sixth month in 8 cases.

Chronic nephritis, further specified as interstitial in 2 cases and as parenchymatous in 1 case. In all 7 cases.

Arterio-sclerosis, 2 cases.

Anæmia, once accompanied by "backache" and once by œdema in 2 cases.

One patient was transferred to class C 3 on account of his age, 42. This man gave a history of an attack one year previously.

Arterio-Sclerosis.—

Although arterio-sclerosis was given as the reason of unfitness in only 2 cases its presence was observed in the peripheral circulatory system of 8 out of the 20 patients failing to make a complete recovery: in one other signs of this condition were noted in the retinal vessels only, making a total of 9 in which the arteries were obviously affected. In one further case a systolic bruit is recorded as the only abnormal feature in the cardio-vascular system. In 6 arterial changes are definitely stated as not to have been found, while in 4 no observations were recorded on this point. Thus of the patients who failed to do well 9 showed definite signs of arterial degeneration, in 7 such signs were absent, in 4 they were not looked for.

Arterio-sclerosis is present in about 50 per cent. of patients not entirely restored to health.

Of the 29 patients returned as fit for service observations were made as to the state of the cardio-vascular system in all except one, and in only one is any morbid change recorded. This consisted in a slightly accentuated second sound and some thickening of the radial artery. It occurred in a patient in whom a cloud of albumin was still present in the ninth month. The schedule was not very definite as to the patient's disposition, and it is possible that he was actually returned as unfit after it had been completed and had left the medical officer's hands. In 80 per cent. of the cases, then, there was no appearance of signs of arterial degeneration during convalescence.

Arterio-sclerosis is not a common immediate result of the condition.

The arterial changes referred to are reported as appearing from the third to the ninth month from onset.

Eye changes.—Examination was made for eye changes by the medical officers having charge of the cases in the home hospitals in about half of the series.

In only 6 were definite changes recorded, and these all belong to the unfit category. Of the changes, tortuosity of the retinal vessels with high reflex from the arteries and other signs of arterio-sclerosis were recorded four times, choroidal hæmorrhages twice, pallor of the disc twice, hyperæmia of the disc twice, "Tay's choroiditis" once. In no case was there any marked departure from normal vision.

Other factors in prognosis.—Search through the past histories of the patients who failed to make a good recovery revealed the fact that 3 of them had had definite attacks of renal trouble in the past. As these were the only patients in the series of 50 giving such a history it is striking to find them all in the minority of cases which failed to do well.

Of the 9 patients under the age of 35 who failed to make a complete recovery, and whose failure so to do cannot therefore be attributed to changes in the kidney associated with age, 2 gave a past history of acute rheumatism and 3 of acute pulmonary conditions in the past. One gave a history of "backache," which might or might not have been a renal symptom. Two of the remainder were clinically very severe cases from the onset. The remaining one was clinically a mild case at the onset, and it was with surprise that it was found on receiving his after-history sheet that he had been invalided from the Army in the ninth month, albumin being still present in the urine, as suffering from "chronic nephritis." Unfortunately, syphilis was not excluded in any of these cases.

Œdema and prognosis.—The œdema had disappeared in the majority of cases before the patients were sent to England, but in a few it was still persisting at the time of transfer to the home hospitals. By means of the after-history schedules it has been possible to form some idea of the relationship between the persistence of the œdema and the prognosis.

In every case except 1 the œdema disappeared before the albuminuria. The periods of its disappearance were as follows:—

Before end of first week	23 cases.	From second week to end of first month ...	10 cases.
During second week ...	6 ,,	During second month	7 ,,

It was still present after the end of the second month in 4 cases.

Of the 39 cases in which it disappeared before the end of the first month 28 became fit; of those in whom it persisted after the first month only 1 became fit. In this case the œdema disappeared finally on the forty-fifth day, and this was the only case in which it is reported as persisting after the albuminuria.

From the above it is concluded that:—

1. The œdema usually disappears during the first week. Its persistence during the second week is common; its persistence after the second week renders the prognosis increasingly unfavourable.

2. The presence of œdema after the end of the first month indicates that restoration to health will be incomplete.

Albuminuria and prognosis.—Practically all the patients were sent to England still showing albumin in varying quantities in their urine. Its disappearance was recorded on the schedules in 32 out of the 50 cases. From the time of onset the dates of its disappearance were as follows:—

Before end of first week	0 cases.	During second month ...	12 cases.
During second week ...	2 ,,	During third month ...	5 ,,
From second week to end of first month	7 ,,	During fourth month ...	2 ,,

Total before end of fourth month, 28 cases.

Of the above 28 cases, only 2 fall into the unfit class. Of the remaining 22 cases, it disappeared during the fifth and sixth month in 4 cases, but of these 2 were reported as permanently unfit. It was still present at the time of making the report in 18 cases, of whom 16 had been invalided out of the Army or classed C 3.

The above figures seem to show that—

1. The albuminuria usually ceases towards the end of the first or during the second month.

2. It may persist during the third month and the case still end favourably.

3. Its continuance after the end of the third month from onset renders the prognosis as regards restoration to complete health unfavourable.

Note on Etiology.

Although in collecting the facts for the original clinical report it had been hoped that some light might be thrown on the etiology, this hope has hardly been justified. Only two positive deductions bearing on the question could be made.

1. That the condition is proportionately commoner among troops the greater the exposure their work entails.

2. That the liability to the condition increases with age.

Among suggestions as to the causation of this condition made in the past have been (1) the presence of chloride of lime in the drinking water; (2) the absence of vitamines from the rations; (3) poisoning by heavy metals ingested in

solution in the juice of tinned fruits; (4) the action of poisonous gases; (5) that it is due to an infection.

In regard to suggestions 1 and 4 it is sufficient to point out that this condition was common in the Federal Army during the American Civil War, when in the Wilderness that Army was fighting under conditions of exposure and hardship similar to those now imposed upon the men on the Western front. But the Federal troops were strangers to both chloride of lime in their drinking water and poisonous gases in their trenches. Moreover, if poisoning by gas plays any part in this condition, the great increase in the use of gas shells, dating from the end of 1916, should have been followed by a corresponding rise in incidence, and this has not been the case.

As to the absence of vitamines, it is sufficient to point out that at the period under consideration preserved food formed only a small part of the rations, and there was no reason to suspect any shortage of these bodies.

If the consumption of tinned fruit has anything to do with causing the condition it ought to be proportionately more common among the officers than among the men, for much more tinned fruit is eaten in officers' messes than among the men. The fact is that the reverse is the case.

In pursuance of the view that the condition is of infective origin, various organisms have been isolated from the urines or nephritic cases, and in some instances vaccines prepared from them have been used in treatment. Recovery followed, but this is only surprising to those who disbelieve in vaccine therapy. Tytler and Ryle[2] recovered a streptococcus forming greenish colonies on blood agar from nephritic urine; they recovered similar organisms from controls, but in a smaller proportion of cases. They do not appear to attach much importance to this organism as an etiological possibility. Davies and Weldon[3] state that they have known instances of transmission of the disease to attendants, but the details given are so scanty that they can hardly be intended to serve as evidence.

There is one factor or group of factors common to all cases occurring in the B.E.F. in France and to the outbreak during the American Civil War, and that common factor is excessive and prolonged fatigue in combination with exposure.

It has long been recognised that albumin, often in large amounts, and casts are almost constantly present in the urine of healthy adults after such exertion as is entailed by ordinary athletics. This albuminuria is stated always to clear up and to leave no ill-results or predisposition to renal trouble. Such is undoubtedly the case in athletes, who after the game is over can take as much rest as they please. Among soldiers under modern war conditions, however, the case is very different. The battle does not stop like a game; it continues for days, weeks, or months, and the soldier must participate until his unit is relieved. When not actually attacking or repulsing attacks, the soldier is engaged in digging, ration-carrying, wiring, or some other arduous work. His intervals for sleep are inadequate and short, and his rest is uncomfortable and broken. Under such circumstances it is conceivable that what in the athlete may be a passing symptom, may in the soldier become a morbid process.

Martin Fischer maintains that acute nephritis is due to a toxic acidosis. He regards the albuminuria of athletes as due to a physiological acidosis. The difference he looks upon as one of degree, not of kind. Osler remarks that "common febrile albuminuria ..... represents the first link in the chain leading to acute Bright's disease." May not the same remark apply to the albuminuria of exertion?

All things considered, it seems possible that the most fruitful line of research as to the causation of this condition would be on the alterations of metabolism produced by fatigue, meaning by fatigue the bodily state produced by exertion, lack of sleep, and exposure.

Such an investigation might well also throw light on the etiology of that large class of cases occurring in civilian life and usually described as nephritis *a frigore*, for clinically the difference between these and the "trench" nephritis cases does not seem to be great. The prognosis in "trench" nephritis seems to be slightly better than in the civilian disease, but this may be accounted for by the fact that the former condition occurs among more or less picked men. Various writers have called attention to the great frequency of pulmonary complications, particularly bronchitis, in the military cases. The obvious explanation of this would be the infection of an œdematous lung from a pre-existing mild bronchitis, such as is common enough among the men in the colder months. Tytler and Ryle, in the article above quoted, draw attention to a deposition of fibrin in the walls of the lung alveoli of some of their cases which came to post-mortem. This condition, they state, is not found in ordinary nephritis, and they regard it as pointing to the action of a local irritant. They also call attention to hæmorrhages into the spleen. It will be interesting to learn whether these changes can really be regarded as differentiating "trench" from civilian nephritis. The changes found by these investigators in the kidneys were apparently such as might well occur in a case of nephritis *a frigore*.

It would appear that the principal, if not the only, way in which "trench" nephritis differs from nephritis as seen in civil practice is in the greater frequency of its incidence. Acute nephritis is not a very common disease among civilians; the condition described above is decidedly common in the B.E.F., though exact figures as to its incidence per 1000 are not now obtainable. What is the factor common to both soldiers and civilians, but more potently effective among the former than the latter? Such a common factor is excessive and prolonged fatigue, combined with exposure to cold and wet.

In conclusion it may be stated that such evidence as is provided by the consideration of the above series seems to indicate that the condition known as "trench" nephritis differs little from nephritis as met with in civilian practice except in the greater frequency of its occurrence, and that it is either a primary acute nephritis or an exacerbation of pre-existing disease, induced by fatigue and exposure.

My thanks are due to Colonel T. R. Elliott, A.M.S., consultant physician to the Boulogne Base, through whose courtesy the organisation of the National Research Committee for following the after-histories of patients was placed at my disposal; to the medical officers of the home hospitals who filled in and returned the schedules, thus making possible the section on prognosis; and to the nursing staff of the wards at the base hospital in France, whose unflagging zeal made possible the collection of the clinical material.

[2] Clinical and Pathological Notes on Trench Nephritis, W. H. Tytler and J. A. Ryle, Quarterly Journal of Medicine, January, 1918.

[3] A Contribution to the Study of War Nephritis, F. C. Davies and R. P. Weldon, THE LANCET, July 28th, 1917.

"OBSCURE EPIDEMIC ENCEPHALITIS."

SOME OBSERVATIONS ON BLOOD COUNTS AND CEREBRO-SPINAL FLUID.

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WITH the object of ascertaining the condition of spinal fluid and blood in this disease I have examined a number of cases of "obscure encephalitis" under observation at the London Hospital.

Findings in Epidemic Poliomyelitis.

I consider it material to refer briefly to the findings summarised in the Rockefeller Institute Monograph No. 4 (1912) and Dr. G. Draper's book on acute poliomyelitis (1917).

In the literature on poliomyelitis there are conflicting statements about leucocyte counts. L. E. La Fetra, in New York, reported six cases with a leucocytosis running from 13,000 to 20,000, while E. Müller, in Germany, reported 15 cases with a leukopenia of from 3000 to 5000. Though Gay and Lucas found leukopenia with lymphocytosis in monkeys, their leucocyte counts in human cases were 7800, 12,200, 11,600, 17,400, 12,000, and 13,400. Dr. F. W. Peabody and his co-workers' results can be summed up as under.

"We have found in the blood of patients with poliomyelitis a constant and marked leucocytosis. If taken in connexion with other available evidence a leucocytosis of from 15,000 to 30,000 is distinctly suggestive of the disease in question, especially if the polymorphonuclear cells are increased at the expense of the lymphocytes."

They find that this leucocytosis lasts for as many as seven weeks and is highest in the youngest children.

With regard to the spinal fluid "previous investigations have not been extensive nor have the examinations been careful." Gay and Lucas have recorded 75 to 100 per cent.

of mononuclear cells. Dr. Peabody and his colleagues examined 233 fluids from 69 cases, and they found that almost all were clear, colourless, and watery. Only a few showed the slightest opalescence. The type of cell present in the fluid was almost always the mononuclear. Though Flexner and Lewis and Lucas all record polymorphonuclear cells in the spinal fluid of their experimental monkeys up to 72 hours from the time of inoculations, Lucas in his 11 pre-paralytic human cases found only mononuclear cells. It must be stated that 2 out of 6 prodromal stage cases of the Rockefeller Institute showed polymorphonuclear cells. However, Dr. Draper describes many abortive and pre-paralytic cases in his book on acute poliomyelitis (1917), and he describes a "fluid whose clearness may or may not be impaired. It is rarely opalescent or turbid. Here at once is a gross point of difference from the fluid of cerebro-spinal meningitis." He also describes *polynuclear cells which are not polymorphonuclear cells* in the very early stages, but which are replaced by the end of 24 to 36 hours by small lymphocytes which represent 90 per cent. of the total number.

As regards protein, all the investigators have recorded a more or less definite excess.

In effect, according to the American investigators, a *leucocytosis* of from 15,000 to 30,000, combined with an excess of protein and a well-marked excess of mononuclear cells (small lymphocytes) in the spinal fluid is always present in cases of poliomyelitis. In a small percentage of cases polynuclear cells are said to occur in the spinal fluid in the prodromal stage.

Investigation of Cases of Epidemic Encephalitis.

My own results are as follows:—

Results of Examination of Blood and Cerebro-spinal Fluid.

No.	Sex	Age	Cerebro-spinal fluid.		White cells of blood.						Max. temp.
						Differential counts.					
			Prot.	Cells.	Total.	P.	L.	H.	E.	O.C.	
1	M	58	+	SL	7,400	52	41	7	—	—	100°
			+		10,200	60	35	4	1	—	—
2	M	50	±	SL	6,400	74	20	3	2	1	99°
			±		6,000	67	24	4	4	1	—
3	M	48	±	SL ±	12,800	91·5	6	2	—	·5	104°
4	M	41	+	SL+	9,200	69	25	5	—	1	104°
5	M	40	±	No SL	7,200	57	37	2	4	—	99°
					5,800	48	35	4	12	1	—
					5,000	54	39	4	2	1	—
6	M	34	±	SL nil	9,000	59	33	7	1	—	99°
					6,400	73	23	3	1	—	100°
					5,480	78	16	6	—	—	—
					8,600	65	30	5	—	—	—
7	M	33	+	SL +	7,000	52	41	6	1	—	103°
8	F	23	+	SL	9,000	86·5	8·5	4	1	—	100·5°
			±	+	6,800	72	22	6	—	—	—
9	M	9	*	*	4,000	35	58	6	—	1	101°
10	M	7	?±	SL ±	21,200	88	10	2	—	—	104°
11	M	4	Nil	SL nil	14,000	75	19·5	3·5	2	—	101°
					7,840	63	32	5	—	—	—
12	F	2½	±	SL nil	3,600	19·5	73·5	2	5	—	102°
			±	±	—	—	—	—	—	—	—
13	F	1½	+++	+++T.B. found.†	11,680	64	31	4	1	—	103°
14	M	48			7,040	71	28	3	—	—	102°
15	M	47			8,800	63	32	3	2	—	99°
16	M	6			7,400	72	21	5	1	1	103°
17	F	6			11,600	85	13	2	—	—	105°
18	M	5			10,000	55	42	1	2	—	104°
19	M	5·12			10,000	18	75	4	2	1	101°
20	M	4			12,400	33	57	2	3	—	—

Prot., protein. P., polynuclears. L., lymphocytes, large and small. H., hyalines. E., eosinophils. O.C., other cells. SL., small lymphocytes. Max. temp., Maximum temperature recorded during attack.

* ½ c.cm. only, not sufficient to examine. † Cerebro-spinal fluid, Prot. +++ fine cobweb; Cells—SL. 60 per cent.; P. 40 per cent.

± = Very slight excess of protein or of cells up to 10 per c.mm.

+ = Slight excess of protein or of cells up to 20 per c.mm.

+++ = Marked excess of protein or of cells up to 100 and over per c.mm.

Remarks.—Case 1. Drowsy; ptosis; delirious. *Case 2.* Drowsy; ptosis. *Case 3. Died.* Anaerobic blood culture negative. Ptosis; rash; drowsy. *Case 4. Died.* Landry's type. *Case 5.* Ptosis; later facial paralysis. *Case 6.* Drowsy; ptosis. Unfortunately spinal fluid was not examined a second time. Anaerobic blood culture negative. *Case 7.* Dazed. *Case 8.* Catatonia; unconscious. *Case 9.* Ptosis; drowsy; chorea; ? T.B. *Case 10.* Drowsy; lobar pneumonia. *Case 11.* Delirious; irritable. *Case 12.* This blood count was done 9 weeks after admission; ? ptosis. *Case 13. Died.* Drowsy; proved on P.M., T.B. *Case 14. Died*; delirious; drowsy. *Case 15.* Ptosis; mental and speech slurring. *Case 16.* Drowsy. *Case 17.* Vomiting and abdominal pain. *Case 18.* Irritability. *Case 19.* Drowsy. *Case 20.* Ptosis; convalescent.

Twenty cases were examined, all of which were considered to be examples of epidemic encephalitis. In all cases the blood was examined and in 12 cases the spinal fluid also. (See Table.)

In 2 cases the diagnosis was proved to be erroneous. Case 10, with a high leucocyte count and a practically normal spinal fluid, developed a typical attack of pneumonia. Case 13 had tubercle bacilli in spinal fluid and this result was confirmed post mortem. In the remaining 18 cases, with the possible exception of one or two doubtful ones, there was every reason to suppose that the diagnosis was correct.

Leucocyte counts.—With the exception of Case 10, which turned out to be pneumonia, in no case has the leucocyte count been as high as even 15,000 per c.mm.

In 18 counts done on 10 adults the average number of leucocytes was roughly 7600 per c.mm., while the average of 13 counts on 5 typical cases (Nos. 1, 2, 5, 6, and 8) was 7000 per c.mm. The average of 9 counts in children was about 9000 cells per c.mm. The normal number of white cells was found to be between 5000 and 6000 per c.mm. in adults and about 8000 per c.mm. in children. Thus it will appear that there is a *small leucocytosis* in cases of epidemic encephalitis both in adults and children.

Of the 4 fatal cases (Nos 3, 4, 13, 14) No. 13, with a count of 11,680, turned out to be tuberculous, while No. 3, with a count of 12,800, had a generalised hæmorrhagic rash and also a bedsore, which account for the inflammatory condition of his blood. The remaining two had counts of 9200 and 7040.

The counts in children in general were found to be higher. In view of the high count of one fatal case with tuberculous meningitis (No. 13) it is a pity that the spinal fluid was not available for examination in these cases.

As regards the question of leucopenia, it can be stated that *no leucopenia* was found in these cases. Cases 9 and 12, with counts of 4000 and 3600, were both doubtful cases.

The average number of polymorphonuclear leucocytes was found to be 66 per cent. in adults and 45 per cent. in children. As the average number of these white cells in normal counts is about 60 per cent. in adults and 40 per cent. in children, it would appear from the averages that there was only a slight tendency to polymorphonuclear increase. However, there were a few counts in which the relative proportion of polymorphonuclear leucocytes had decidedly increased.

Cerebro-spinal fluid.—The spinal fluids examined either showed nothing abnormal or only a small excess of protein and a small excess of cells which were found to be small lymphocytes. The fluids were in all cases practically clear and in no case was opalescence noticed. Case 13, which had a cobweb and a very large excess of protein and cells was proved to be tuberculous.

Conclusions.

1. The very small amount of leucocytosis—viz., 8000 to 9000 per c.mm.—in cases of epidemic encephalitis falls far short of the pronounced leucocytosis—viz., 15,000 to 30,000—recorded at the Rockefeller Institute in cases of poliomyelitis.

2. The cerebro-spinal fluid is not as grossly affected as in poliomyelitis in which often cell counts running into several hundreds and sometimes exceeding 1000 per c.mm. have been recorded. As a matter of fact, the deviation from the normal is very small.

3. In view of the very small deviation from the normal both of the blood and the spinal fluid in cases of epidemic encephalitis, and especially in the absence of successful experimental communication of the disease to monkeys with the production of paralysis, in my opinion we are not justified in asserting that the virus of epidemic encephalitis is the same as in poliomyelitis.

4. Although the results of the examinations of the blood and the spinal fluid afford no positive proof in support of a diagnosis of epidemic encephalitis, such negative results will materially help in ruling out a number of other obscure cerebral conditions, as was found to be the case in those due to pneumonia and tuberculous meningitis recorded above. It is therefore considered advisable to have recourse to such examinations in all cases likely to be classed as those of epidemic encephalitis on clinical grounds.

I am very much indebted to my chief, Dr. P. N. Panton, for his very valuable advice and guidance. I am also much obliged to my colleague, Dr. Harold E. Bates, for his helpful criticisms and suggestions.

INFLUENZA AND PURULENT BRONCHITIS.

BY A. MAUDE, M.R.C.S., L.R.C.P. LOND.,

CAPTAIN, R.A.M.C.; MEDICAL OFFICER IN CHARGE OF MEDICAL CASES, MILITARY HOSPITAL, THETFORD.

HAVING had the questionable advantage of seeing every epidemic of influenza in England since 1889 my impression of the peculiarities of this outbreak in June, 1918, may be of value. The uncomplicated cases have been characterised by very short incubation (when the facts could be ascertained) and sudden onset. Most of the men complained of initial giddiness, even prior to the usual headache and generalised pain. Conjunctivitis was present in a large number, infection of the throat and tonsils was comparatively rare, and gastric cases were conspicuous by their absence, only occurring in the subjects of previous gastric affection.

Onset.—The young soldiers of graduated training battalions showed a tendency to protound stupor and drowsiness, lasting for several days, a condition probably due to the constant elimination of fatigue products, to which the influenza toxin had been superadded. In nearly all cases the tongue had been extremely coated, tending to early drying of epithelium. There were 2067 men sick with influenza reported in two commands of a combined strength of 10,000 men between June 18th and July 18th, of whom 248 were admitted to hospital. A high proportion of these developed the complex lung condition, described by Lieutenant J. A. B. Hammond, R.A.M.C., as purulent bronchitis,[1] and it may be of advantage to contrast our cases with those recorded in the Aldershot report. In the Thetford outbreak a large number showed a frank lobar pneumonia, usually of the lower lobes only, but in three instances the consolidation was apical. The apical cases were, as usual, severe and accompanied by acute, brief delirium.

Physical Signs.—In the early stages it is remarkable how slow the auscultatory signs are in developing; several days of high temperature may elapse without crepitation or bronchial breathing being audible. There is little relation between the extent of physical signs and the temperature, either at the beginning or during the stage of resolution. The commonest type was a pneumonia of limited extent, accompanied, and often preceded, by coarse bronchial signs indicating a bronchitis of the larger tubes. The pneumonic patches were often bilateral and showed a marked tendency to spread, combine, and wander. The combination of coarse bronchitis and lobar pneumonia produced grave dyspnœa and profound effects on the heart, especially on its right side. The physical signs of bronchitis were frequently present, combined with patchy signs of consolidation. In a large proportion the signs of bronchitis supervened upon those of localised pneumonia. In many instances the bronchitis was one-sided, showing its infective quality. Small patches of collapsed lung were a frequent sequel of this bronchitis; the collapse was in all cases of short duration and completely cleared up.

Sputum.—The sputum in hardly any instance showed the "prune-juice" staining of ordinary pneumonia, though in some cases it was tinged with bright blood in streaks or tiny bright clots (bronchial); in one youthful patient occurred several hæmoptyses of large dark clots, perhaps issuing from an acute bronchiectasis. The usual colour in the pneumonic cases was a faint crushed strawberry, the expectoration became eventually peculiarly tenacious, yellow, consisting of almost pure pus, and frequently in tough curdled casts, evidently brought from middle-sized bronchi. In no case was any offensive odour of sputum present. No systematic bacteriological examination was undertaken, but the researches of Dr. J. W. H. Eyre[2] and Captain W. Rolland,[1] R.A.M.C., have established the question of double successive infection by the influenza bacillus and the pneumococcus.

Pleurisy.—A large number of cases showed pleuritic patches, in most instances at the right base, and a large pleural effusion was formed in one boy of 18, and smaller effusions in others. In a considerable proportion a pleurisy was the herald of the lung attack.

Complexion.—The "heliotrope" complexion, noted in the Aldershot report, was present in many of the worst cases, but these were not so uniformly fatal as that report suggests; there were many recoveries of men in whom this aspect was quite marked.

Temperature.—Hardly any of the cases of defined lobar pneumonia terminated by crisis, and in a high percentage the lysis was very irregular, manifesting a high evening rise for many days, with a definite fall to normal, or near normal. The pyrexia in the pneumonic cases was high, reaching sometimes 105° or 106°, but in only one instance was there a chart of typically pneumonic character. A fall in temperature, whether sudden or gradual, was frequently delusive, being followed by renewed pyrexia. And when purulent expectoration was well established a swinging type with a range of several degrees, as noted by Lieutenant Hammond, was observed.

Prognosis.—The severer cases were characterised by very rapid emaciation, out of all proportion to the duration or severity of the pyrexia. Out of the 250 men admitted to hospital only three died, all from extensive double pneumonia, two being young subjects, and the third a middle-aged subject of chronic bronchitis. Had the epidemic occurred at a less favourable time of year the mortality must have been heavier. Several of the most seriously affected were the subjects of previous acute or chronic bronchitis.

Treatment.—We found that the most useful routine line of treatment was by expectorants, combined with free alcoholic stimulation and heart tonics. The worst cases were kept in the open air in an enclosed corridor, and cold and tepid sponging was resorted to freely in cases of high temperature. Pulmonary antiseptics and inhalations proved useless, and oxygen did not appear to be of value, while atropine seemed to interfere with pulmonary secretion and do more harm than good.

I am indebted to Lieutenant-Colonel H. W. Laing, R.A.M.C., and Major Kennedy Taylor, R.A.M.C., for valuable statistical information.

References.—1. Purulent Bronchitis, by J. A. B. Hammond, Lieutenant, R.A.M.C., and others, THE LANCET, July 14th, 1917. 2. Purulent Bronchitis: Its Influenzal and Pneumococcal Bacteriology, by Adolphe Abrahams, Captain, R.A.M.C., and others, THE LANCET, Sept. 8th, 1917.

AN "INFLUENZA" OUTBREAK.

BY C. W. WIRGMAN, M.D. LOND, F.R.C.S. ENG.,

CAPTAIN, R.A.M.C. (T.F.)

THE recent epidemic has been such a rush for most of those who have to deal with the victims that any detailed account of a number of cases is likely to be left till the pressure is over, and so notes of the earlier cases may be lost for lack of leisure.

I have been so situated that it was possible to keep short notes from the start of an outbreak. Also, I was in charge of a body of troops under identical conditions and training, so that data were easily compiled.

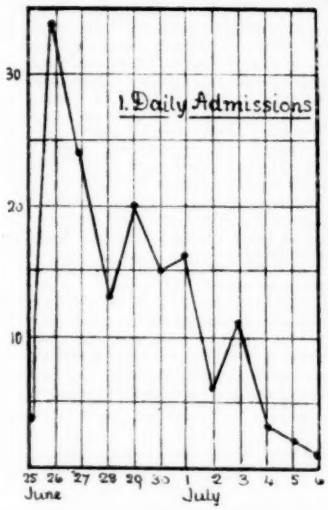
The following notes do not pretend to be more than a record of how one particular set of patients were affected. They are not meant to be a general description of all the features of the present outbreak, but only of a type found in a body of normal adults. The unit in question really consisted of two detachments (A 1 men, with a few exceptions). They were camped in the same field, their tents were side by side, and their work was identical. For all practical purposes they may be considered as one unit. The total strength (all ranks) in camp was 516. The epidemic probably began on June 24th, but the first definite cases were observed on the 25th. The record is closed on July 6th as one unit moved out on that date. The new cases ceased coincidently.

Speaking generally, none of the patients gave cause for any real anxiety as to the upshot of the attack. No more serious condition than one attack of bronchitis (slight) occurred. The cases admitted to hospital (from camp hospital) were only 14 in all, and the usual reason for admission was persistent temperature of 99° F. or over.

The subjective symptoms complained of were headache, usually frontal, pains in back and limbs, soreness or pain in eyes, sore-throat, particularly in the later admissions, cough, and sometimes abdominal pain. The temperature ruled about 101° to 104°, none rising to 105°, and a few not reaching 100°. By the third day the temperature, as a rule, was below 99°. The average stay in hospital, including day of admission and day of discharge, was 3½ days. The first symptom to disappear was the headache and the last the backache.

The earlier cases exhibited a marked tendency to conjunctivitis and the later ones to pharyngitis. Both of these

were slight, but the pharyngitis appeared to cause considerable discomfort. Laryngitis was not uncommon, and cough was frequent and troublesome. The pulse-rate was not rapid, considering the temperatures, and usually fell, when the temperature became normal, to about 80 per min. The tongue in nearly every case was heavily furred. In 11 cases labial herpes was severe.



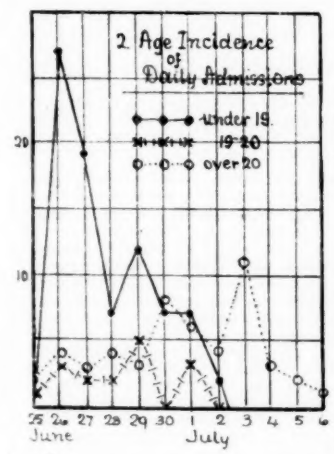
The age of men affected was very interesting. At first the younger men went down, while as time went on it was the older ones who succumbed.

The figures were as follows:—

No. in camp under 19	...	157
Over 19 and under 20	...	72
,, 20		287
Total		516

No. of influenza cases:—		
Under 19	83	or 53%
Over 19 & under 20	16	,, 22·2%
,, 20	50	,, 17·4%
Total ...	149	28·9%*

* Of number in camp.

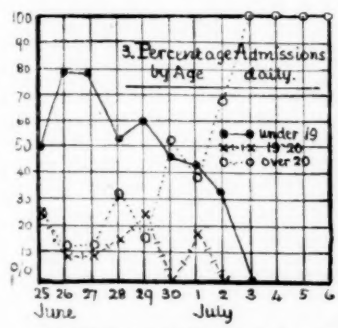


	Symptoms.	No.	Percentage of cases.
Subjective.	Headache	140	94·0
	Frontal	88	59·0
	Occipital	11	7·4
	General	41	27·5
	Pains in back or limbs	99	66·5
	Sore throat	39	26·2
	Pain in eyes	40	26·9
	(No pains in back or limbs)	14	9·4
Objective.	Conjunctivitis	57	38·2
	Pharyngitis	29	19·5
	Laryngitis	21	14·1
	Herpes	8	5·3
	Tonsillitis	2	1·3
	Bronchitis	1	0·6
	Epistaxis	2	1·3
	Diarrhœa	3	2·0

Treatment of symptoms by drugs was unavailing. Rest in bed till the temperature subsided was the only thing that could be done.

As to methods of prophylaxis, avoidance of confined atmospheres, as far as possible, was insisted upon; morning and evening nasal lavage and gargling with normal saline was carried out. Coughing, spitting, and cigarette-smoking were discouraged.

Tents were struck frequently and bedding put out in the sun daily.



The graphs attached show: (1) total daily admissions; (2) admissions by age, daily; and (3) per cent. admissions by age, daily.

SHORTAGE OF NURSES.—The Queen's Hospital for Children (Hackney-road, London, E. 2) is appealing, with the support of the Bishop of London, for the nursing service at the hospital. The number of beds lying vacant for want of nurses is now 24, with a prospect of further reduction in the near future. The weekly attendances at the hospital number about 2000.

THE SUCCESSFUL USE OF ANTIMONY IN BILHARZIOSIS

ADMINISTERED AS INTRAVENOUS INJECTIONS OF ANTIMONIUM TARTARATUM (TARTAR EMETIC).

BY J. B. CHRISTOPHERSON, M.A., M.D. CANTAB., F.R.C.P. LOND., F.R.C.S. ENG.,
DIRECTOR OF THE CIVIL HOSPITALS, KHARTOUM AND OMDURMAN.

AFTER trying and confirming the conclusions of previous workers on the use of intravenous injection of antimonium tartaratum (tartar emetic) in cases of Oriental sore, internal leishmaniasis, and naso-oral leishmaniasis (espundia) as found in the Sudan,[1] in May, 1917, I commenced at the Khartoum Civil Hospital to treat bilharziosis (vesical and rectal) by the same drug. Amongst the natives of the Sudan bilharziosis is not so frequent as amongst Egyptians; still, in the clinic of a hospital such as Khartoum Civil Hospital there are sufficient cases to give the treatment a very fair trial.

The treatment of bilharziosis up to the present has been altogether palliative and unsatisfactory. It has baffled all attempts to find a satisfactory remedy. Time was the sole hope of cure, but as time takes years (a considerable number, perhaps 10)* to effect a cure, and in the meanwhile the patient is running no small risk, to say nothing of the pain and inconvenience of repeated attacks of cystitis and the debilitating effect of loss of blood, anything which promises even alleviation is to be welcomed.

There is no doubt that antimony given as intravenous injections of tartar emetic considerably interferes with the bilharzia and suspends its activities, even when it does not actually kill. My own opinion, based on the cases treated during the last year, is that antimony (antimony tartrate) is a definite cure for bilharziosis, and that the intravenous injections of tartar emetic kill the *Schistosomum hæmatobium* in the blood and render it harmless.

List of Cases.

No.	Age.	Nationality.	Date.	Quantity injected.	No.	Age.	Nationality.	Date.	Quantity injected.
				gr.					gr.
1	21	Egyptian.	5/6/17	15*	7	15	Sudanese.	14/11/17	27
2	21	,,	5/6/17	15†	8	17	,,	3/3/18	25½
3	20	Sudanese.	10/6/17	22†	9	17	,,	5/3/18	29½†
			12/3/18	11	10	17	,,	5/3/18	33½
4	25	Egyptian.	23/10/17	22½‡	11	12	Egyptian.	6/4/18	30
5	17	Sudanese.	4/11/17	20½	12	19	Arab.	17/4/18	—§
6	13	,,	6/11/17	18½	13	11	Shagii.	20/4/18	22

* Treatment suspended. † Relapse. ‡ Treatment not completed. § Details mislaid.

Record of Cases.

These observations are based on 13 cases of *Schistosomum hæmatobium* (see Table); more than 13, however, were treated by the method.

Three of the cases were 13 years of age or under, the remainder from 15 to 21. Three were Egyptians, the others natives of the Sudan. Three had relapses; the total amount of tartar emetic injected in these cases was:—

(1) 15 gr. in 6 injections in 10 days, relapse after 25 days.
(2) 10 gr. in 10 days, relapse after 8 months.
(3) Had 7 injections, relapse in one month.

Two patients were discharged before completion of treatment, being "time-expired" soldiers.

The case (No. 2) which relapsed in 25 days was an Egyptian soldier who had a heavy infection of bilharzia of rectum and bladder, and injections had to be suspended after six had been given in ten days (15 gr.) owing to phlebitis. He was one of the time-expired soldiers who would not remain in hospital after their time had expired.

In Case 4, Egyptian, the injections were suspended owing to the patient being weak, but they were resumed again after ten days. He had 22½ gr. of antimony tartrate in 13 injections in 30 days. He was 44 days in hospital; discharged at own request, being a "time-expired" soldier. The ova were very scanty, if present at all, on discharge, but as ova had only been absent a few days previous to discharge, this case can at most be put down as improved.

* Loos says the worms only live three to five years, while the eggs remain, and are the real cause of the disease.

The following case may be taken as a type.

CASE 7.—Patient, 15, student, Sudanese; pain on micturition and passage of a little blood with last portion of urine for one year. Bilharzia ova found in urine. Injections were commenced Nov. 14th, 1917, with 1·3 gr. antimony tartrate, increased by steps to 2 gr., injections being given every other day. On Dec. 10th (26 days after treatment) his urine became free from ova, after 21 gr. in 13 injections; treatment was continued until the 16th. He had in all 27 gr. in 16 injections in 32 days, without reaction. For three months he reported once a fortnight, and remained free from signs of bilharzia. On May 30th, 1918, his urine was normal to chemical and microscopical tests; he said he was cured, and there had been no signs of recurrence.

In the following case the patient relapsed after eight months:—

CASE 3.—Patient first seen in June, 1917; hæmaturia for five years; had never been free from it; no frequency or pain. When admitted the first time 22 gr. antimony tartrate were given in 20 days in 13 injections. They were generally well tolerated; on three or four occasions moderate reaction, local pain, rise of temperature, and some retching. The urine became clear after he had had 10 gr. ten days after admission; discharged for observation on June 30th, 1917.

Urine remained clear and free from blood and ova for eight months until March 12th, 1918, when it became smoky—microscopic blood was found and two B. ova. Injections were resumed with 1 gr. The next day 2 gr. were given; some reaction, rise of temperature, vomiting, metallic taste, and feeling of weakness. After a day's interval 2 gr. were injected again; he vomited three times, and had metallic taste in throat; injections reduced to 1½ gr. every other day. On one occasion he had nausea, diarrhœa, giddiness, with 1½ gr. He had 11 gr. injected in 12 days; then was discharged at request of his master; ova and blood had completely disappeared from urine. He was seen periodically until May 20th, no blood or ova present on any examination; is presumed cured.

After 22 gr. during first course, and 11 gr. during second course I trust that patient is cured.

CASE 8.—Patient, 17, student, Gordon College, was admitted to hospital for diarrhœa with blood in stools; lateral spiked B. ova were found. Treatment commenced with ½ gr. antimony tartrate; next day 1 gr., continued daily five times; then 2 gr. were injected. Cough, salivation, lacrymation, metallic taste in mouth, and vomiting ensued. After interval of one day 1½ gr. were injected every other day; slight reaction followed first two injections of 1½ gr.; then injections were well tolerated. Stools became free from B. ova after 13 gr. had been injected; patient had 25½ gr. in 19 injections in 28 days. No return of symptoms two months afterwards.

CASE 9.—Patient, 17, student, Gordon College, from Dongola Province; March 5th, 1918. Had passed blood in urine for three years or more; nearly every time blood came at end of micturition; very little pain. In December, 1917, he had come to hospital with same symptoms; received seven injections; was free from symptoms for a month, when they returned. Urine smoky, with heavy brown deposit; B. ova easily found. He commenced with ½ gr. antim. tartr., ¾ gr. next day, 1 gr. third day until seventh day, when injections were discontinued owing to dermatitis of both elbows due to iodine. Injections were resumed after five days, 1 gr. being given, increased to 2 gr. next day, 2 gr. being given on two occasions; this was reduced to 1½ gr. every other day for three weeks. Urine became quite free from B. ova 25 days after treatment and remained so. In consequence of relapse patient had 29½ gr. antimony tartrate in 22 injections within a period of 28 days. No untoward symptoms except irritation due to iodine on the skin and reaction on two occasions, when 2 gr. were injected; metallic taste, giddiness, and vomiting once.

CASE 11.—Patient, 12, Egyptian, was infected at Damanhour in Egypt. For two and a half years he has passed blood in urine which, he said, was never free. The boy was anæmic to a degree, had dirty sallow complexion of person suffering from intestinal and other parasites, and was undersized; weight, 4 st. 13½ lb. Large number of B. ova in urine. He was, as usual, a week in hospital under observation before commencing treatment; he improved somewhat. Treatment commenced on April 6th, 1918, with ¼ gr.; two days later ½ gr. After five doses of ½ gr. every two days 1 gr. given on alternate days; then 1½ gr. The first 1½ gr. followed by cough, giddiness, vomiting. 1½ gr. dose was, however, continued for three times with no further reaction; 2 gr. were then given. Giddiness, nausea, and vomiting occurred. After two days this was repeated with the same result. Dose then reduced to 1½ gr. on alternate days; slight reaction. After three doses 2 gr. were again tried; vomiting occurred four times, giddiness all afternoon. Dose reduced to 1½ gr. on alternate days. 30 gr. altogether were given in 23 doses over 49 days.

This was an interesting case; the boy put on weight and his haggard expression became quite a happy one. The urine became normal, B. ova disappeared in about three weeks. He was still in hospital at the time of writing, but all symptoms and signs of bilharziosis had disappeared.

Looss[3] states that the ova remain and produce symptoms after the parent worms have died. This fact might account for the finding of a stray ovum in an apparently cured case; it would also account for the discovery of a small clot containing six or seven ova passed in Case 11 on April 22nd, 1918, 14 days after all other symptoms had disappeared, and subsequent to which nothing was discovered.

Method of Administration.

The method adopted was briefly as follows:—

The cases were all well-marked cases of bilharziosis of bladder or rectum, or both, of average intensity. The ova were easily found in the excretions. A careful note was made of: (1) the patient's (subjective) symptoms; (2) how long he had been infected; and especially (3) whether he had intervals of complete freedom from symptoms.

The patients were not kept in bed, rest having a tendency to allay the hæmaturia and bring about a temporary suspension of symptoms, &c. When possible the patient was under observation for a week previous to treatment, the urine being tested in the morning, when it might be free from blood, and in the evening after day's exercise, when it was more likely to contain blood and shreds.

A 10 c.cm. record syringe, with a fine needle, was used. The injection was given into one of the conspicuous veins at bend of elbow, generally the median cephalic, made prominent by application of tourniquet on upper arm. (The anatomical relationship between median basilic vein and brachial artery at bend of elbow should be borne in mind.) Patient lay down for an hour on bed after injection, or longer if symptoms intervened. The solution used was tartar emetic, ½ gr. to 20 m. aq. destill., and diluted with 2 vols. of aq. destill. at time of use. (Too strong solution causes phlebitis, and injection round vein instead of into vein causes necrosis of surrounding tissues.) The injection was repeated and the dose increased by ½ gr. every other day until 2 gr. was reached, and this was continued until 30 gr. had been injected.

A boy of 10 years commenced with ¼ gr.; some of the older cases had as much as 3 gr. at an injection.

It would appear that, generally speaking, the maximum should be for a boy of about age 10, 1 gr.; age 17, 1½ gr.; for an adult the maximum should be 2 gr.

There is scope for the exercise of judgment with regard to frequency of injection and amount injected at one time. It is essential to be on the watch for symptoms of: (1) acute and subacute antimony poisoning; (2) chronic antimony poisoning.

Metallic taste in mouth and throat and cough immediately after the injection need scarcely be considered as poisoning, but vomiting, giddiness, delirium, a considerable rise or fall in temperature, diarrhœa, and cramp in calves should all be taken seriously. They are danger signals, and when they occur the injections should be temporarily suspended, and when injections are resumed decreased in strength, and not given so often.

Rapid small pulse, cold clammy skin, signs of collapse, in fact, are serious symptoms of poisoning.

Chronic antimony poisoning should especially be watched for. Weakness, loss of weight, anæmia, glossitis, cracked tongue with ulcers, diarrhœa call for suspension of the antimony and for appropriate treatment.

Improvement in symptoms is often noticed after the second or third injection by the clearing up of the urine.

The disappearance of clots of blood, shreds, &c., of smokiness, is the first favourable sign, together with improvement of subjective symptoms. The ova disappear from the urine more gradually. The patient's own feelings form a good guide as to progress. He has had his complaint for some years, and quickly and accurately notices any improvement.

There is also the frequency, pain on micturition, and character of urine, and the objective symptoms of the patient to indicate improvement or otherwise, as well as patient's weight. Increase in weight, together with improvement in symptoms, is a favourable sign, whereas loss of weight and continuance of anæmia indicate chronic intoxication by the antimony. It is more necessary to be on the watch for loss than for gain in weight. There is the blood and albumin in the urine, all valuable in estimating result of treatment. Finally, the microscope is the most valuable guide of all, because ova may continue to be found after other symptoms have cleared up, and after the urine, to ordinary rough tests, has become normal. The urine tested should be passed fresh, that at the end of micturition should be taken, and it should stand for a short time to allow solid particles to settle, or it may be centrifugalised.

When to Stop Injections and Amount of Antimony Required.

The periods of freedom from symptoms often seen in the natural course of untreated bilharziosis render it difficult to say how long injections should be continued after the urine becomes normal and the symptoms disappear.

As previously stated, the urine clears up after the second or third injection, as a general rule, but it is a mistake to conclude that a permanent cure has resulted after two or three injections. My personal opinion is that a course of injections lasting over 15–30 days, injected on alternate days, commencing with ½ gr., and increasing by ½ gr. up to 2 gr. or 3 gr. until 30 gr. have been used, represents the required killing dose. In this connexion it may be said that cases of bilharziosis do not, as a rule, suffer from the intense debility that is found in leishmaniasis, and so the debilitating and poisonous effects of the drug are not so readily produced, and the same amount of watchfulness is not so necessary in cases of bilharziosis as in leishmaniasis. The chronic toxic effects of the drug must be looked for in bilharziosis rather than the acute toxic effects which are more likely to be seen in treating leishmaniasis with antimony.

I do not think that injections of less than 1 gr. each time have much effect on the *Schistosomum hæmatobium*, but

injections of less than 1 gr. are necessary to commence with in order to establish a tolerance for the drug.

We thought that we noticed in cases of boys where a small dose was used to commence with, and where the dose was not increased with sufficient rapidity, that there was a tendency for the bilharzia to establish a tolerance for this drug.

Having regard to the large number of bilharzia worms, male and female, which are often seen in the portal vein and its tributaries post mortem, it may happen that all are not equally affected by the injection. Some are killed, but it may be that there are some remain whose activities are only suspended for a time, thus accounting for a return of symptoms.

From the experience I have gained my opinion is that three or four injections may in some cases effect a cure, but that a total of 30 gr. or more is required lasting over 15–30 days.

Reappearance of Symptoms after Period of Freedom or Apparent Cure.

Reappearance of symptoms may be explained in one of the following ways:—

1. A period of freedom from symptoms may be accounted for by the fact that in bilharziosis clinical symptoms may be absent altogether at times; this is tantamount to saying that antimony has no effect on bilharzia. It is scarcely possible that in so many of the cases tried these natural periods of rest would coincide with the administration of tartar emetic.
2. The bilharzia may be scotched, not killed—treatment has not been continued for long enough.
3. When a great number of bilharzia worms are present some may be killed, others only placed temporarily hors de combat by the antimony treatment. Some may be more resisting than others.
4. As antimony is excreted from mucous surfaces and the bilharzia worm does not like antimony, it may avoid the mucous surfaces (bladder and rectum) whilst the antimony is being excreted. In other words, it will return to the portal vein whilst the mucous surfaces are infected with antimony. In this way its activities may be suspended for some time, as antimony is an accumulative poison, and remains in the tissues for some considerable time.

The bilharzia worms by instinct will find their way back to the bladder and rectum in order to deposit their ova as soon as these organs become free from antimony. Relapses may possibly be accounted for in this way.

5. Re-infection. This is not likely—in any case not for some months afterwards.

Further Points in Treatment.

It must be remembered that tartar emetic is a poison; ¼ gr. has caused death in a child, 2 gr. in an adult.[3] It is an accumulative poison. On the other hand, large doses have been tolerated. It is safe to say that, generally speaking, for children the commencing dose should be ¼ gr. and for adults ½ gr., but the maximum dose should be reached as soon as possible.

It has always appeared to me that the logical and natural way to attack bilharzia would be directly through the blood stream, and in the case of vesical infection through the dorsal vein of the penis, which terminates in the pudendal plexus, surrounding the prostate, the neck, and the fundus of the bladder. The injection of tartar emetic into the veins offers an opportunity to try this where the dorsal vein of the penis is conspicuous. The vein joins the hæmorrhoidal plexus, and so directly communicates with the portal venous system in which the bilharzia worms are located; it also communicates with a systemic venous system by means of the internal pudendal vein which opens into the internal iliac.

Of the two great germicidal drugs we possess—arsenic and antimony—arsenic given as salvarsan and atoxyl appears to have little or no effect on *Schistosomum hæmatobium*, although in sleeping sickness, yaws, and syphilis it displays specific qualities; antimony given in the form of a metallic salt, or as tartar emetic, appears to be a specific cure for leishmaniasis, and there seems to be good reason to believe that it is a specific cure in the case of bilharziosis as well.

Other Successful Results.

In confirmation of the extremely satisfactory results I have obtained during the year in the intravenous injection of antimony (tartar emetic), Dr. V. S. Hodson, who very kindly continued the treatment of bilharzia cases with tartar emetic at Khartoum Civil Hospital during my absence in 1917, and afterwards at Atbara, carried on a series of trials quite independently, sends me the successful results of the treatment of seven cases.

Dr. Hodson has for some years been working at the treatment of bilharzia, and it is of particular interest to have his favourable opinion on the cases treated by antimony. Of his 7 cases, 5 had 4 injections; 1 had 3 injections; 1 had 2 injections. He commences with ½ gr., and injects every other day for three injections, increasing ½ gr. each injection—the interval between 1½ gr. and 2 gr. being three days or longer.

The immediate result of this method was found to be satisfactory, but I am personally inclined to think that three or four injections will not give a permanent result, although sufficient to paralyse the activity of the worm for a time.

Some Necessary Precautions.

Finally, I would point out that the intravenous treatment of both bilharziosis and leishmaniasis by antimony should be undertaken with:—

1. Appropriate and reliable apparatus which is not necessarily elaborate and expensive—e.g., a proper syringe and needle and sterilising arrangements for the same, and small flasks for keeping the solution in, &c.
2. A proper sense of responsibility when injecting remedies directly into the general circulation viâ the vein.
3. The due appreciation of the fact that the drug injected is a poison, and that its reckless use will kill the patient.
4. The exercise of judgment as to dosage and length of time of administration, stopping altogether, suspending, increasing dosage, according to circumstances.
5. And last, but not least, a good note should be made of the case before commencing treatment and a daily note of symptoms during the treatment, examination of urine and fæces, &c., without which any useful conclusion will be impossible. The subsequent history for a considerable time should be watched.

Without these the placing of intravenous injections as routine treatment in the hands of medical officers in outstations and elsewhere whilst such treatment is in the experimental stage will do more harm than good, and will bring discredit, perhaps undeserved, on the remedy.

In conclusion, I would thank Dr. Mustafa Izzedin, who has done so much of the work of injecting these cases, and Mr. J. R. Newlove, who has carried out many of the microscopic examinations connected with the urine.

References.—1. Notes on a case of Espundia and three cases of Kala-Azar in the Sudan treated by the Intravenous Injection of Antimonium Tartaratum, J. B. Christopherson, Jour. Trop. Med. and Hyg., Oct. 17th, 1917. 2. Loos: Cairo Scient. Jour., June, 1910. 3. Anomalies and Curiosities of Medicine, p. 449. See also THE LANCET, 1916, ii., 782; 1918, ii., 45.

A CASE OF ACUTE DELIRIOUS MANIA: RECOVERY.

BY F. WYATT-SMITH, M.B., B.C. CANTAB.

THE combination of fever, mania, constipation, and insomnia in a clinical picture is sufficiently rare to make the publication of the following case desirable, especially in view of recovery having taken place.

A man, aged 28, was discharged from the Army as "unfit" two years ago. Since then, never robust, he has been continually overworking himself at a munition factory at Woolwich, his only holidays being a few interruptions through illness. On June 22nd, 1918, a Saturday, he could not go to work, being flushed, feverish, delirious, and suffering from headache. He continued in this condition until the following Tuesday (the 25th), when, suddenly, unexpectedly, and without any warning, he attempted to cut his throat, and was brought to Constance-road Institution, East Dulwich, struggling violently with four policemen, and admitted. He was so violent that, I being temporarily absent, a neighbouring practitioner was called in, and at 5.20 P.M. gave him I.H. hyosc. hydrobrom., gr. 1/100, and ordered gloves to be used if necessary. The patient slept for three and a half hours. At 11 P.M. I saw him. He was then awake, flushed, with two men standing over him to prevent his falling out of bed, and so restless that I could not take his temperature. As there was a good deal of influenza at Woolwich at the time, I thought he might be suffering from a toxic delirium and gave him tr. quininæ amm., 1 dr. three-hourly; calomel, 5 gr., statim; and paraldehyde, 2 dr.

On the next morning (the 26th) I found that he had had but a few snatches of sleep up to 3 A.M. and none since, and that he had tried to drink his urine during the night. He was talkative, incoherent, resistive, restless, abusive, and obscene, but I thought his physical condition had improved. T. 99·6° F. I ordered him 20 gr. of sulphonal, night and morning. At 3 P.M. he had marked flight of ideas, with rhyming and punning. At 6.30 P.M. his temperature was 102° in spite of the quinine he had been taking, and, after four days illness, made me doubt if he was suffering from the present mild epidemic of influenza, so, thinking that the quinine might possibly be giving him headache, though

he made no complaint of any, I withdrew it, and, his bowels not having been open since admission, I gave him an ounce of senna mixture. At 8 P.M., as he had had no sleep since 3 o'clock in the morning, and very little since admission, I gave him I.H. hyosc. hydrobrom., gr. 1/33. At midnight he had not slept, his delirium was low and muttering, his pulse weak, and his breathing shallow. In fact, he was in an alarming condition. As he was suffering with all four of the cardinal symptoms of acute delirious mania, I supposed he must inevitably die, dared not give him any more hyoscine in consequence, and, *faute de mieux*, and partly to see what it could do in the way of "bucking him up," I gave him 2 oz. of mist. amm. and ether.

On the morning of the 27th, except that his bowels had been open and that, as he fortunately had done all through, he continued to take nourishment well, his physical condition was much the same—namely, T. 103°, P. 132, R. 60 and shallow—he was very weak and had had only 40 minutes' sleep. All the stimulating effect of the ammonia and ether seemed to have been exercised on his brain, and here it had been only too successful, for again he was very noisy, restless, and hysterical. I determined that, like the Nurse in Tennyson, "he must sleep or he would die," so gave him I.H. hyosc., gr. 1/50, at 11.45 A.M. After this he was somewhat quieter, and slept a little at times. He was much quieter towards evening, and his temperature had fallen to 100° at 6 P.M. Throughout the night he was quiet on the whole, groaning and mumbling at times, but he had no real sleep, only dozing occasionally for a few minutes.

June 28th: Though, owing to some misunderstanding, he got no more sulphonal after 8.30 A.M. on the 27th, he now continued to improve steadily. The charge attendant's day report says: "Seems much better. Quieter, dozing and sleeping at times during the day." He continued to take nourishment very well, and his pulse, temperature (99·2° at 6 P.M.), and respirations henceforth ceased to be a feature. His bowels, too, acted well during the night, and gave no further trouble. The night report says: "Moaning and wandering in his talk at times. Fairly well and quiet on the whole. Slept at small intervals, and fairly well after 3.15 A.M."

On the morning of the 29th, the eighth day of his illness, he announced that he felt much better. In fact, he was now quiet and sensible and, except that he was troubled with a little bronchitis, made an almost uninterrupted recovery. (I may interpolate here that I noticed harsh breathing on his admission, and thought that his impatience, with his dyspnœa, might account for his habit of plucking at his throat and tongue, as also, perhaps, for his having attempted to cut his throat, the marks of which were then visible on the left side of his neck.) He was very thin, weak, and exhausted, but on July 3rd he sat up, and on the 11th was transferred to the general wards "time expired."

Did this man suffer from acute delirious mania or not? If not, what was the matter with him? He had all the classical symptoms, though it must be admitted that the constipation was not very obstinate. And then he did not die. These are objections. But, in answer, it may be asked, How marked must the individual symptoms be in order that they may count? and remembered that the authorities do not state definitely that the cases never recover. Against the view that the case was a toxic psychosis and the poison influenza are the facts that (1) the epidemic was a mild one; (2) the delirium was very severe; (3) no complaint was made of pain, except for a little headache late on in the case, unless the uneasy plucking at the throat (? air hunger) is to be so regarded; (4) the "picture" struck me as typically maniacal; (5) and, lastly, after the disappearance of the fever and the delirium a mildly demented condition remained, which seemed to me more marked than the exhaustion of the illness would account for.

The patient's hands and forearms were stained yellow on admission, and I inquired about toluol, but learned that he never went near it. He now tells me that this staining is due to C.E. powder, which he has to handle though he does not make it; but the stuff is said to be absolutely harmless to all who come in contact with it, and no precautions are taken against it.

If this was a case of poison psychosis, then how are we to diagnose acute delirious mania? Has a possibility of intoxication been excluded in all the cases recorded? And, if not, is it certain that this rare combination of fever, mania, constipation, and insomnia is a disease entity at all? If there is such a thing, then I cannot help thinking this was it. And, if so, the fact of recovery from the condition makes doubly interesting a case worth publishing in any event.

Constance-road Institution, East Dulwich.

Reviews and Notices of Books.

A Plea for the Insane. By L. A. WEATHERLY, M.D. With Foreword by Dr. T. B. HYSLOP. London: Grant Richards. 1918. Pp. 288. Price 10*s.* 6*d.*

OUR national methods of dealing with mental disorders are far from satisfactory, if only because early treatment is largely denied to persons in danger of mental breakdown. For a poor woman on the verge of melancholia little or nothing can be done; no general hospital will receive her, she cannot be admitted as a voluntary boarder in a public asylum, and convalescent or nursing homes, even if available, cannot give the necessary care and attention. So it comes about that until she becomes worse and can be certified as insane she must remain without effective treatment. There is, moreover, an ignorant public prejudice in relation to mental disease; it is regarded as disgraceful to need mental treatment, and this fact leads to concealment of threatening conditions. Even those who spend their lives in ministering to the insane are often looked at askance; at any rate, the law is often administered as though suspects were being dealt with. The requirements in the way of forms, returns, and reports in hospitals for the insane suggest that abuses, existent in some measure very many years ago, still persist; but it is time that the public ceased to regard these institutions from the point of view of Henry Cockton. But while the amenities of legal shelter for the insane have so much improved, the law in many directions is prejudicial to the interests of the insane, for it raises a mischievous barrier between the general public and the mentally afflicted, and tries to make a hard-and-fast line where it cannot be drawn.

Dr. Weatherly's book, "A Plea for the Insane," is therefore a very timely work. If his attitude to many questions is one-sided, this is the result of personal experience, while a lively style and the recital of cases and stories make the work pleasant reading. Many of his recommendations will obtain the unqualified support of the medical profession. The need for special hospitals or clinics for the treatment of nervous and mental disorders in their early stages is now generally admitted, and that it should be possible for persons who desire it to be admitted voluntarily in public asylums. Few will object to the suggestion that the Lord Chancellor's Visitors should visit all patients whose affairs are administered by a receiver appointed under the 116th section of the Lunacy Act, and that magistrates shall be required to examine in private and not in the public courts persons alleged to be insane and not under proper control. It is widely felt that the larger asylums are much too large and that it is better that patients should be placed in a colony or village, living in small detached houses; also that medical superintendents have too much administrative work, and that the number of patients under the care of assistant medical officers is far too great for proper and effective treatment. Other of Dr. Weatherly's views will not receive such ready endorsement. In reference to the treatment of mental disorders in their early stages Dr. Weatherly proposes that homes should be approved by the Board of Control in which patients may be received, and if necessary detained, upon "notification" to the Board. It would have been interesting if the difficulties inherent in this proposal had been more fully discussed. As regards the poor there can be no two opinions as to the desirability of establishing clinics or special pavilions attached to, or affiliated with, hospitals and universities. The need has been long recognised and repeatedly advocated in these columns. But the question of detention raises serious difficulty, which is greatly increased when wealthy patients are concerned. In America many psychopathic hospitals are conducted entirely on a voluntary basis; so also is the Lady Chichester Hospital at Brighton, which Dr. Weatherly so warmly commends. This question of notification, carrying with it the power of detention in approved homes, requires more hard thinking than Dr Weatherly appears to have given to it. Many persons will question the desirability of establishing what will virtually be new licensed houses throughout the country. That something must be done in this direction all familiar with the subject will admit, but it cannot be said the problem is solved in the book before us. Dr. Weatherly

proposes that lunacy administration should be decentralised and that many of the duties of the Board of Control should be discharged by district commissioners or by committees of magistrates. It seems probable that patients and their friends would frequently prefer that certificates and reports concerning them should be sent to a Government department rather than to some local body of magistrates. The Board of Control is freely criticised, and though no names are mentioned it is not difficult to guess to whom reference is made. The statement, "I want to say, in spite of many faults, the Board of Control are actuated by the very best motives, and have to administer a silly pernicious Act, drafted by God knows whom," does not make full *amende* for a display of bias.

Dr. Weatherly proposes that the Lunacy Act should be scrapped and that the new one should entirely omit the words "lunacy" and "asylum." He does not seem to realise that any word or phrase that may be substituted will soon acquire a similar objectionable meaning and that it is not a matter of words, but of the attitude of the public towards mental disorder that needs alteration.

The law in relation to criminal responsibility is strongly condemned, especially the MacNaghten judgment of 1843, which fixes responsibility by the possession of an ability to know right from wrong. In this connexion several interesting cases are quoted at length. Two trials for murder by a judge whose name is not given are especially noteworthy. One was a case of marked epilepsy, and though the judge summed up strongly against the medical evidence the jury brought in a verdict of "Guilty, but insane." A week later the same judge tried a lad for murder committed without any known provocation. Dr. Weatherly again gave evidence as to responsibility, but the judge ridiculed the view and the boy was condemned to death He was afterwards reprieved and the event showed that Dr. Weatherly's views were correct, as the lad soon became demented. Later Dr. Weatherly came into personal relations with the judge in question, who apologised to him for his attitude on these two occasions. For Dr. Mercier's views on criminal responsibility Dr. Weatherly finds some hard terms.

Dr. Weatherly's advocacy of the use of mechanical restraint in actively suicidal patients will not commend itself to alienists generally, and several of his remarks about public asylums and registered hospitals are, to say the least, uncalled for He makes a great point of the lack of proper medical care in the large asylums, and to support this shows the cost per patient for drugs and instruments in county asylums, in registered hospitals, in his former private asylum, and in his present home for early undeveloped cases This average cost is respectively 4*s.* 4*d.*, 10*s.* 10*d.*, £3 17*s.* 9*d.*, and £17. These figures are interesting, but are quite valueless unless we know what kind of patient is under care and what is included under the head of drugs and instruments. It would be just as fair to conclude from these figures that in Dr. Weatherly's practice too many drugs are given. The attempt to create a prejudice against institutions by means such as this must be strongly censured.

In spite of the defects which we have indicated the book is a valuable one and is truly a powerful plea for the insane; yet it is to be regretted that its value is reduced by the inclusion of ungenerous reflections on many workers as zealous as the author in the same cause. The book is likely to run into further editions, when opportunity might be taken to reconsider some of these passages.

The Errors of Accommodation and Refraction of the Eye and their Treatment. By ERNEST CLARKE, M.D. Lond., F.R.C.S. Eng. Fourth edition. One coloured plate and 92 figures. London: Baillière, Tindall, and Cox. 1918. Pp. 243. Price 6*s.* net.

No very material alterations in this excellent text-book have been made since the publication of the third edition seven years ago, though parts of it have been amplified. The importance of correcting small degrees of astigmatism in the presence of any symptoms of eye-strain is one of the author's strong points, and among these symptoms are now included neurasthenic symptoms in soldiers suffering from shell shock or head injuries; also the continual blinking of the eyes sometimes seen in children. From this point of view it is especially necessary to correct the smaller degrees of astigmatism (under 0·5 D.), the theory being that the unequal contraction of the ciliary muscle is capable of neutralising them in the absence of a correcting lens, but only by expenditure of an undue amount of nervous energy. As this is the view emphasised by the author, we do not understand how he can still be of the opinion that the ophthalmometer is a more delicate test than the method of retinoscopy, for it does not profess to measure the total but only the corneal astigmatism. That of the lens when the ciliary muscle is put out of action, though never considerable, may nevertheless be of great importance, and of this the ophthalmometer gives no indication.

La Gangrène gazeuse. Par M. WEINBERG and P. SÉGUIN. Monographies de l'Institut Pasteur. Paris: Masson et Cie. 1918. Pp. 444. Price 20 francs.

WHILE the subject of this contribution appeals mainly to bacteriologists and laboratory workers, none the less it contains much information useful to the clinician and notably to the surgeon.

The first section of the monograph, devoted to the general question of gas-gangrene infection, is especially illuminating, and its perusal is recommended to all who are interested in the treatment of wounds. The controversy concerning what precisely is the causal agent of gas gangrene is fully discussed, and attention is called to a factor that cannot be sufficiently emphasised—viz., that one clinical entity may be produced by infection with more than one specific micro-organism, and that conditions differing in their clinical manifestations may be due to infection with one and the same micro-organism. In this section the authors attempt to correlate the findings of those investigators who dealt with small groups of cases of gas gangrene prior to the war with the results that have been obtained by themselves and others from recent more precise inquiries. The authors' criticism of the confusion of thought and carelessness of technique which led in pre-war days to the adoption of a chaotic nomenclature, and caused a falsely simple view to be taken of its causation, is fully justified—von Werdt actually described a disease that did not exist. The danger of drawing conclusions from observations based upon the investigation of impure cultures is insisted upon, and for this section of their monograph alone Weinberg and Séguin lay bacteriologists under a debt of gratitude for evolving order from chaos. This diversity of causal organisms and the natural corollary thereof—symbiosis as a factor in the causation of infection—is for the first time appreciated at its true value. The point is well put on p. 31.

"En définitive, la 'gangrène gazeuse,' malgré son apparente unité, n'est, au point de vue pathogénique, ni *une* maladie ni même un ensemble de 2 ou 3 maladies; c'est un état morbide causé par des flores microbiennes extrêmement variées. A nous en tenir aux seuls anaérobies, nous avons trouvé 40 types de flore pour les 91 cas de gangrène gazeuse que nous avons étudiés.

Le problème de délimitation qui est parfois si délicat pour une maladie monomicrobienne spécifique prend donc ici un caractère de difficulté qui le rend presque insoluble."

The second section, in which is given a systematic description of the micro-organisms that play a part in the causation of the disease under consideration, is of more interest to the laboratory worker than to the general reader. Four new species of bacilli—*B. œdematiens*, *B. fallax*, *B. aerofœtidus*, *B. histolyticus*—which have been isolated for the first time by the authors, are fully described, along with the other organisms that have in past times been incriminated as causal agents of gaseous infections. Of the new species, *B. œdematiens*, both because of its apparently frequent occurrence and of its undoubted pathogenicity, is most carefully considered, and an excellent case is made for regarding it as a separate species altogether from *Vibrion septique*. It is refreshing to find that Weinberg indicates in this section that *B. Welchii* may be a species which comprises several sub-groups and suggests that the same may be true of other anaerobic bacilli which have hitherto been defined by cultural reactions alone. A specially valuable feature of this section are the notes pointing out the relationships which the micro-organisms, that have been recently defined, bear to others that have from time to time been described as of importance in the causation of gas gangrene and kindred conditions both in human and in veterinary pathology.

The third section deals with the origin and evolution of gaseous infection and very pointedly emphasises the importance of diversity of infection, of symbiosis, and what might

well be termed "the life-history of wound infection." Attention is called to the valuable information that may be obtained both by blood culture and by examination of tissue from the site of the lesion, and to the special factors—arising from the conditions under which war wounds are received—that tend to cause gas gangrene, as well as to the physical and other factors which in each individual case are adjuvant to its incidence. Finally, the experimental work which led to the preparation of specific sera is fully described. The results of the employment of Weinberg's sera are most encouraging, and his work has made it possible to place in the hands of surgeons and physicians valuable prophylactic and therapeutic reagents.

Professor Weinberg and his collaborator are to be congratulated on the excellence of this work. The matter is well arranged and the whole work is marked by a concise diction and by a logical sequence of presentation that makes it a pleasure to read. The work is a mine of useful information and of helpful suggestion, while due emphasis is laid upon the valuable results to be obtained from careful bacteriological inquiry.

Treatment and Repair of Nerve Lesions. By Mme. ATHANASSIO-BENISTY, House Physician to the Salpêtrière. Preface by Professor PIERRE MARIE, Member of the Academy of Medicine. Edited with a Preface by E. FARQUHAR BUZZARD, M.D., F.R.C.P., Lieutenant-Colonel, R.A.M.C. With 62 illustrations and 4 full-page plates. 1918. Pp. 181. Price 6*s.* net.

Clinical Forms of Nerve Lesions. By Mme. ATHANASSIO-BENISTY, House Physician to the Salpêtrière. Preface by Professor PIERRE MARIE, Member of the Academy of Medicine. Edited with a Preface by E. FARQUHAR BUZZARD, M.D., F.R.C.P., Lieutenant-Colonel, R.A.M.C. With 81 illustrations and 7 full-page plates. 1918. Pp. 235. Price 6*s.* net.

London: University of London Press, Ltd.

WE have already reviewed these excellent compendiums on the occasion of their original appearance in a French edition. In English form they are sure of wide appreciation as they contain a wealth of practical information, based on war experiences, bearing on the protean forms of nerve injury. Symptomatology, diagnosis, prognosis, and treatment are so fully described as to leave little for criticism by way of omission, and still less by way of inaccuracy of statement. We note that the writer rather favours "hersage" as a suitable form of operative treatment in selected cases—i.e., the making of a series of longitudinal incisions in the nerve over the part injured and deformed by local swelling or neuroma-formation. For causalgia apparently hersage has given a good result in some cases, but alcoholisation rests on a securer basis. The illustrations and diagrams add materially to the usefulness of these text-books, which are essentially up to date, and also contain numerous references to the abundant literature of peripheral nerve injuries. The translation is uniformly well done.

JOURNALS.

The Journal of Comparative Pathology and Therapeutics. Edited by Sir JOHN MCFADYEAN and Sir STEWART STOCKMAN. Edinburgh: W. and A. K. Johnston, Ltd. Price 2*s.* 6*d.* quarterly, or 10*s.* per annum.—The June number of this journal is full of good things for others than veterinarians. In a paper on the Histology of the Lesions of Johne's Disease, by Sir John McFadyean, we have an interesting comparative study of the lesions produced by the bacillus of Johne's disease and of those produced by the bacillus tuberculosis. The observations are of special moment in that, up to a certain point, the Johne's bacillus appears to do all the work that the tubercle bacillus achieves, but at this point it stops short and does not bring about the caseation changes so characteristic of tuberculous lesions in cattle. A further differentiating feature appears to be a lesser faculty—or opportunity—of migration on the part of the Johne's bacillus. Principal McFadyean's observations on the formation of plasma cells, giant cells, and on what he speaks of as the "symplasma" stage will be read with interest and profit by those interested in "bovine" tuberculosis, as well as by those who refer to the paper for its account of the histology of Johne's disease.—J. C. Lewis, D.V.Sc., and N. R. Seddon, B.V.Sc., contribute a suggestive but somewhat inconclusive account of "Habronemic Conjunctivitis."—Two papers, one on Castor-seed (*Ricinus communis*) Poisoning in Horses, by G. H. Wooldridge, F.R.C.V.S., the second on Poisoning of Horses with Castor Seeds, by Munroe White, M.R.C.V.S., deal with the symptoms, treatment, prognosis, and morbid anatomy of what is evidently a very serious matter for horse owners during the present shortage of fodder, when there exists such a temptation to "rope in" additional sources of food. Typical gastro-enteritis, emaciation, and exhaustion appear to characterise this type of poisoning, sometimes accompanied by peculiar neuro-muscular symptoms. One important factor in the treatment is, apparently, absolute rest.—Tuberculosis in the Camel, by Major F. E. Mason, A.V.C., has been studied so little that much of what is here set down is practically new, and both veterinarians and pathologists will look forward to further instalments of Major Mason's interesting observations.—The same may be said to apply to the article on Scrapie, by Sir John McFadyean, who, however, breaks a lance in a friendly joust with Dr. J. P. McGowan, who maintains that scrapie is the result of a heavy infection of the muscular tissue of sheep with sarcosporidia.—A Note on Piroplasmosis of the Donkey, by J. A. Griffiths; a review on Veterinary Post-mortem Technic, by Walter J. Crocker, B.S.A., V.M.D.; and an abstract, Blood-sucking Insects as Transmitters of Anthrax, complete a very readable number.

The American Review of Tuberculosis. Baltimore: National Association for the Study and Prevention of Tuberculosis. Price 35 cents.—The June issue gives a striking insight into the thoroughness with which the campaign against tuberculosis is being carried on by influential bodies in the United States of America. Dr. Donald B. Armstrong, the executive officer of the Framingham Community Health and Tuberculosis Demonstration, describes its working since its initiation in December, 1916. During its first year of existence 5000 persons, representing about one-third of the population of Framingham, were voluntarily examined by experts in a search for incipient or neglected tuberculosis. Summer camp accommodation was found for 100 delicate children, about 500 children between the ages of 1 and 7 years were tested with tuberculin, and about 4000 cases of illness or defects other than tuberculosis were referred to local physicians for treatment. These achievements represent only a fraction of the activities of the Framingham scheme. Were it not that Dr. Armstrong could show this scheme already in full activity, with definite results obtained, this whirlwind campaign of a small community to put its home in sanitary order would read like some Utopian project. It is refreshing to find that in the United States at any rate the health reformer who dreams dreams is sometimes able to translate them into action.—A paper by Dr. Forrest B. Ames describes the results of a tuberculosis survey of the residents of Saranac Lake. A modern village of nearly 6000 inhabitants, it has become a centre for tuberculous invalids, about one-fifth of the total population having immigrated there for their health. The health of the indigenous population was found by the house-to-house canvass to be excellent, in spite of poor housing conditions in certain quarters; and the indigenous morbidity and mortality from tuberculosis were exceptionally low. This paper, which confirms the findings of previous investigations into the health of the indigenous population of tuberculosis health resorts, is crammed with tables and analyses, and is another example of the painstaking methods adopted in America to elucidate the problems of tuberculosis.—A third paper by Dr. Walter L. Rathbun is a plea for a more skilled and systematic search for tuberculosis among incoming aliens.

Archives de Médecine Navales.—Dr. Mourron (Fleet Surgeon) of the French Navy discusses in the issue for July the establishment of sanatoriums for the tuberculous invalids of the French Navy and dockyard services. The navy has already two small sanatoriums on the west coast, but Dr. Mourron thinks that sea air is too stimulating for phthisical cases, and proposes that other sanatoriums be established in the south of France. A recent decree has put £40,000 at the disposal of the French Home Secretary for the providing of hospitals for the men of the navy invalided during the war for bacterial diseases of the lungs; that is why Dr. Mourron is considering this question just now. He assumes it will be necessary to provide three sanatoriums—one of 500 beds for early cases, one of 300 beds for developed cases, and a third of 200 beds for advanced cases. He recommends their location near Toulon, in a sheltered valley at an altitude of about 700 feet, already chosen by the Anti-tuberculosis Society of Toulon as the site of its sanatorium. He estimates the cost of buildings at £200 per bed, while maintenance would require about 4*s.* daily, a total expense of £200,000 for building and £75,000 annually, although it is very difficult to estimate the length of stay of the average patient. This sum is more than has been allotted by Parliament, but Dr. Mourron insists that dockyard men shall be allowed to benefit as well as the sailors, and hopes that the expenditure will, by cures and by education of its patients, well repay the country, the loss by tuberculosis being so heavy. When the cost of cure is so high, might it not be more thrifty to pay more attention to prophylaxis by the more extended application of artificial ventilation in the ships of the Fleet?

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 7, 1918.

Coal and the Cult of the Skin.

MANY times already in the course of the war the medical profession has been invited by Government Departments to use its influence in bringing home to the people at large the hygienic lessons rendered urgent by the times we live in. The most recent of these appeals emanates from the Office of the Coal Controller, who warns us that the country is faced with a serious shortage of coal. The outlook to-day, he says, is much graver than is generally realised, the deficit amounting to something like 36 million tons of coal. Coal is the principal and irreplaceable source of power, whether for offence or defence; it is the raw material from which gas, electricity, and steam alike are produced, and a reduction in its supply beyond a certain limit would put an end to essential industries. The Coal Controller draws the lesson that self-denial is called for, that every private consumer should be content with three-quarters of the ration which is legally his due; and he appeals to medical men to help him in enlisting the services of every man, woman, and child in the country in a united effort of economy in the use of coal. To us it appears that the counsel of the medical man might often be of the first value.

It would be easy to enlarge on the hardships which any further restriction in the already scanty coal-supply will involve for the private citizen. The hardship might indeed imply some danger for the old and infirm as well as for the young child, were it not for the prospect already held out of an increased allowance in respect of both extremes of life. We are concerned here rather with the average citizen and his vital needs. Fuel economy affects us chiefly in two directions. In warmer weather, such as at present prevails, our coal is used to cook and, with a growing mass of the population, to heat water for washing. In the winter, to which the Controller is looking forward with anxiety, coal is used in addition to raise the temperature of the home atmosphere above that of the outside air. Economy of coal in relation to the preparation of food is a familiar subject to those who have studied it practically. And it should now be known to every man, woman, or child that to cook any kind of viands they need only be raised to the required temperature by the active use of fuel, when they can be maintained at or near this level by insulation in one or other of the many ways, of which the newspaper cosy is the cheapest type. Alas! this simple fact, fundamental for economy, appears to be hidden from many people. The continuous consumption of coal or gas throughout the day in a private house for cooking either implies a lamentable want of enterprise or a lack of that feeling for the needs of others enjoined on us by proclamation. The using up of fuel to heat water for bathing purposes continues on an enormous scale. Water is very costly to heat, and this attribute of water makes it an admirable medium for circulating warmth about the house, but there is an obviously large waste of potential energy in allowing successive instalments of 20 gallons each of slightly soapy water at 100° F. to run down the bath-room waste. Nothing is more certain than that the daily full hot bath is unnecessary either for cleanliness or for the maintenance of the proper function of the skin. The frequently repeated use of soap and hot water over the whole body removes from the skin the natural fat which is itself a desirable insulating material. We may admit without shame that the hot-bath habit is in the nature of a pleasant indulgence for those citizens whose ordinary avocations do not bring them into close association with dangerous materials, which have to be regularly removed from the skin by drastic ablution.

Turning to winter conditions, it is in the maintenance of the difference between indoor and outdoor temperature that coal is principally consumed in the private house, and the consumption runs up rapidly as the difference becomes greater. In the summer, when indoor and outdoor temperatures are roughly equal, we wear the same clothes both in and out. As the outdoor temperature falls in autumn most of us temporise by dressing more warmly before resorting to artificial heat. The point at which we give in to the cold varies greatly. In Vladivostok there is little to be gained by delaying the day, since the winter cold is so intense that the resident makes no attempt to meet it half-way, but lives indoors in summer clothes at an artificial summer temperature, encasing himself thickly in the skins of beasts when he stirs abroad. But the climate of this country, much as we abuse it, has this in its favour: that the difference between average summer and winter temperature is only slight, so that the fate of the tuberculous patient or the wounded soldier unprovided with artificial heat is no more to be pitied than that of his comrade in the trenches. Those who think otherwise have not sufficiently realised that the skin is not a mere protective crust but an organ with functions as definite as those of the heart or the kidneys—functions with a wide range of adaptation which develop with appropriate use and respond in proportion to demand. Fortunately, in the recent rise of interest in the maintenance of infant health the public has been receiving object-lessons of the first value along these very lines. Skin training, as we know, plays a large part in the education of the infant, and in the modern nursery the judicious use of cold water and of friction leads on to an indifference to the impact of cold air currents and an absence of that sensitiveness which is a nuisance to its owner and a serious handicap in the business of life. "I am cold but not suffering," is the expression of one so trained. It is perhaps unfortunate that the sensations of heat and cold should have any agreeable or disagreeable tone attached to them. The surface

temperature of hands and feet varies greatly in different people, the same temperature to some being a discomfort, while to others it is a matter of indifference. The sensation of heat and cold provoked in the skin is doubtless a physiological response designed, like that of pain, to call attention to the need for adjustment. But the sensation of cold is largely influenced by the condition in which the skin is maintained. If its possessor keeps it in a more or less moist and sodden condition, at the same time carefully removing the natural non-conducting fatty material, heat is transmitted freely through it, and the need is felt for more external warmth. The pampered skin becomes ever more imperious in its demands. It should be borne in mind that each one of us lives, not so much in the climate of the town or even of his house, but in the atmosphere within his own clothes.

We do not suggest that every individual should study the functions of his skin, seeking to discover for himself the limits of compensation within the bounds of safety. But we think that medical men may be of the greatest assistance to their charges by explaining to them that sensations of cold which they find disagreeable can be largely mitigated by common-sense precautions, and will tend to disappear spontaneously when regarded rightly. Sir GUY CALTHROP'S appeal to the public to save coal may prove, as a secondary result, a stimulus to domestic hygiene of the first order. Many will thereby escape from a yoke of which they are almost unaware.

The Names of Diseases.

ACCURATE nomenclature and an understanding of the principles upon which nomenclature is based are of fundamental importance in the progress of any exact science, and although the science of diseases cannot claim to be exact in the same sense as mathematics, its progress, like that of other sciences, depends largely upon the uniformity, consistency, and accuracy with which its terms are employed. For statistical purposes it is essential that the names of diseases should convey the same meaning to all who are engaged in observing and recording them. Multiplicity of names for one and the same disease must lead to confusion, and any lists of diseases should consist of short names comprised in one word, or in the fewest possible words, the names being such as are in common use which yet do not imply erroneous or doubtful theories. The name of a disease should connote its etiology, its general or local site, its characteristic symptoms and physical signs, and the pathological effects which it produces in organs and tissues. But these conditions cannot be satisfied in every case. In some the etiology is unknown, in others the localisation; in some the symptoms and physical signs are not distinctive, in others the pathological consequences on organs and tissues may not be perceptible; in others, again, these morbid changes are all we have to guide us. A nomenclature of diseases cannot therefore avoid including the names of symptoms and physical signs and morbid changes. But symptoms and physical signs are not themselves diseases, and their names should not be used to connote disease when further information is available. The object of a national nomenclature is not educational or dictatorial, it is merely to record and to stereotype for the time being names which are in common use. It is not the compilers' business to alter or correct such names or to invent new ones. Hence, the compilers of a nomenclature are not to blame for including names sanctioned by antiquity although they have long lost their first significance, or names which shock the purist on account of their hybrid and barbarous formation. If generally accepted by medical writers they are retained, if obsolete or becoming so, they are dropped out, or used only as synonyms; their coming and going affording valuable landmarks in the history of medicine.

Classification is of equal importance to indicate the relationship between the diseases and conditions named. Theoretically diseases might be classified according to their symptoms, their causes, their intimate nature, according to the tissues or the systems of the body affected, or according to the parts of the body as they lie anatomically. In the present state of our knowledge the best classification is topographical, diseases being divided into those which affect the body as a whole, and those which affect locally different systems, and the organs and tissues of which they are composed. This method of classification was adopted by the joint committee appointed by the Royal College of Physicians of London which drew up the first Nomenclature of Diseases in 1869, and the compilers of the fifth edition just published have not departed from the general principle. The changes in the new edition are not of a drastic nature. The section hitherto entitled Infective Diseases is now described as Diseases caused by Infection. Intoxications have been relegated to the list of poisons in the appendix. More significant is the splitting up of a heterogeneous collection of diseases called "general" in former issues into three new groups: Diseases of the Blood, Diseases of the Ductless or Endocrine Glands, and Diseases due to Disorders of Nutrition or of Metabolism. While this spells progress there yet remains, to remind us of our ignorance, a large group of disorders classified as "Names of symptoms, groups of symptoms, diseases named with reference to their symptoms, and diseases of which the pathogenesis is not accurately known." And although this tell-tale heading occurs in all sections, it is especially well represented in that of diseases of the nervous system. Under the broad topographical headings subdivision has been carried out on a definite scheme in so far as it applies to individual organs and structures, the sub-headings being—

(1) Inflammation and its varieties; (2) vascular conditions—hyperæmia, hæmorrhage, anæmia, œdema, thrombosis, embolism, necrosis, gangrene; (3) hypertrophy and atrophy; (4) local manifestations of general diseases, such as syphilis, tuberculosis; (5) diseases and disorders of function special to the organ under consideration; (6) local nervous affections

such as atony, spasm, paralysis; (7) degenerations; (8) mechanical results of diseases; (9) cysts and new growths, non-malignant, malignant; (10) effects of parasites; (11) effects of poisons; (12) malformations; (13) injuries; (14) foreign bodies.

Varieties or special forms of diseases are usually indented below main headings; but indented names do not necessarily include all forms of the heading under which they are indented.

Where synonyms must be given, the name of the disease which appears first is that by which it is usually known. The synonym is the Greek, Latin, or English equivalent, and in making a return it is optional to employ the name of the disease which appears first, or its synonym. The compilers of the Nomenclature have decided to omit in this edition the triple column of Latin, French, and German equivalents or translations which formed a prominent feature in previous editions. Their decision, which some may regret, was based principally on the logical ground that the insertion of French and German names was beyond the scope of a British nomenclature. The ambition of the first compilers to be the founders of a truly international nomenclature has not been realised, and, except by international agreement, it is obviously impossible to guarantee the correctness of the foreign equivalents. The omission of Latin and Greek equivalents was dictated by other reasons. The former are often mere translations of English phrases, while many of the names of diseases in common use are already framed upon a Latin or Greek basis, or are hybrid combinations sanctioned by time. No real need therefore exists for a separate Latin column. In so far as the omissions make for simplification they are entirely to the good, and will conduce to the general use of the Nomenclature of Diseases by all medical practitioners for the registration of diseases. It is to be hoped that in its present simplified form the book will be in more frequent use as a work of reference. It not infrequently happens that a medical practitioner having to fill up a death certificate is at a loss in what form to state the primary cause, and for this purpose the Nomenclature should be of great assistance. Uniformity in the return of causes of disease is essential for statistical purposes, and without accurate statistics no effective control can be exerted on the public health.

We have received a copy of the report of the Committee of the Privy Council for Scientific and Industrial Research for the year 1917–18. This is the third annual report issued since the committee was appointed. The past year has seen a great extension of the work of the department, to some of the salient features of which we propose to return in a future number.

WE regret to announce the death in a London nursing home of Dr. Margaret Todd, sometime medical officer to the Edinburgh Hospital for Women and Children, and best known as a writer under the pseudonym "Graham Travers."

THE death occurred at Birmingham on August 28th, in his sixty-ninth year, of Dr. Robert Saundby, emeritus professor of medicine in the University of Birmingham and consulting physician to the General Hospital, well known alike as a clinician, teacher, administrator, and author. We hope to give some account later of his fruitful and many-sided activities.

Annotations.

"Ne quid nimis."

MOTHERHOOD AND INDUSTRY.

THE employment of married women on a vast scale in munition factories has recently created what is largely a new problem in industrial hygiene. The problem is not entirely new, for in the manufacturing centres of the North of England many women have been accustomed to factory work for the greater part of their lives, and in Dundee the Census returns for the year 1911 show that more than 40 per cent. of the married women in the town between the ages of 20 and 24 were occupied before the war in remunerative occupation outside their homes. In Dundee, as we learn from the pages of the Carnegie Report[1] on Scottish Mothers and Children, married women's labour has long been recognised as a contributory cause to an abnormally high infant death-rate and stillbirth-rate. The report of the medical officer of health, Dr. Charles Templeman, for the year 1905 showed that more than half the employed mothers in Dundee worked up to within two months of their confinement, and a special inquiry conducted for the Scottish Insurance Commissioners in 1904 by Miss Mary M. Paterson revealed the further fact that while many women were sent away from the mill some time before childbirth, because their work failed to reach the required standard, it was often only a change to laborious work elsewhere or at home.

But the larger problem is new, since it is only during the war that any considerable proportion of women have entered upon factory employment or that many places have been filled by married women; some of whom have offered themselves doubtless in view of the urgent national need, others on the more usual ground of supporting themselves and their children. In the second of two inquiries made by Dr. Janet M. Campbell into the health of women munition workers, a large proportion of married women were found among the 1183 women examined in eight typical factories, and many of them were employed on heavy work. Dr. Campbell in her report on this inquiry to the Health of Munition Workers Committee[2] touches on some of the difficulties of these women in regard to the most important events of their lives. The married women with homes of their own, she tells us, generally leave the factory in the early months of pregnancy, but a number of others are obliged by financial pressure to work almost up to the time of confinement. In filling factories it is the usual practice to discharge a woman as soon as she is known to be pregnant, and the fear of dismissal may lead her to conceal her condition as long as she can, with results which may well be disastrous to both mother and child. The expectant mother, as might have been anticipated, does not fit smoothly into the rigid industrial routine originally planned for the male worker, and cannot take her place safely in the open labour market.

Expectant motherhood should, many people think, be excluded altogether from the stress of industrial life, and it is instructive, therefore, to note the experience of those who can show good reason

[1] Report on the Physical Welfare of Mothers and Children, Part 2, Scotland, 1917.

[2] Final Report on Industrial Health and Efficiency. 1918. Cd. 9065. Price 2s.

for holding the contrary view. We publish this week part of a report to the Oxford Welfare Conference by Dr. Mary A. S. Deacon dealing with the effect of employment in a filling factory on 1200 women workers over a period of nine months. Of the 575 married women among them more than one-sixth became pregnant during this time, and of these 101 pregnancies so far 65 went on to full term without mishap, 2 terminated prematurely on account of cancer in the one case and syphilis in the other, while 13 abortions occurred before the third month was completed. Mrs. Deacon discusses the employment of these expectant mothers both from the employers' point of view—the efficiency of their work—and from the workers' point of view—the question of maternal welfare. She assumes the necessity of such work under present war circumstances, and endeavours to bring about conditions satisfactory alike to employer and expectant mother. Fortunately, in a filling factory work is graded, and in many cases she found it possible to obtain the temporary transference of pregnant workers from the heavier to lighter operations. In other kinds of factories where such grading is not possible the expectant mothers may be provided with a pre-maternity work-room under the supervision of the factory medical officers, a suggestion made by Dr. Rhoda Adamson[3] from her experience as medical examiner of the National Ordnance Factories in Leeds. Further light on these points will be very welcome in view of the conclusion reached by Mrs. Boyd Dawson,[4] in a recent report on industry and motherhood made over a wide field, that given good food and hygienic conditions there is little, if any, evidence of harm accruing to women from occupations involving severe muscular labour. "We can find no case," Mrs. Dawson writes, "on the grounds of quality of maternity, for the prohibition of any woman to undertake any kind of healthy employment of which she feels herself capable." Here is a fruitful object of study for the scientific factory surgeon.

REMOVAL OF A PROJECTILE FROM THE CAVITY OF THE LEFT VENTRICLE.

AT a meeting of the Académie de Médecine of Paris on August 6th M. René Le Fort reported another case of a remarkable advance made in French surgery during the war—the removal of foreign bodies from the cavities of the heart. This appears to be the first case on record of removal of a foreign body from the cavity of the left ventricle. The history of the patient, whom he showed, was briefly as follows:—

A man, aged 21 years, was wounded on Sept. 21st, 1917, at Verdun, by a grenade fragment which passed through his right arm and penetrated his chest. His initial troubles were hæmoptysis and right hæmothorax from which he quickly recovered. But the projectile, which was described as "intrapericardiac" remained. He suffered from dyspnœa on exertion and cardiac irritability, and could not work. The radioscopic report was that the projectile was situated at the apex of the heart and moved with it. In July, 1918, he came under the care of M. Le Fort, who made an incision in the fifth intercostal space, divided the fifth costal cartilage, turned back the pleura adherent to the pericardium, and opened the pericardium, which contained citrine liquid. Radioscopy showed clearly that the projectile was in the heart. With the gloved hand it could not be felt, but on removing the glove a sensation of altered contour could be felt near the apex. The intercostal incision was transformed into a "hinged shutter," comprising the fourth and fifth ribs. An attempt was made to hold the projectile near the apex while four fine double sutures of silk were passed with a curved needle, confining the projectile. The ventricle was incised at the apex, a grooved director was passed into it, and the projectile, which appeared to be entangled in the chordæ tendineæ, was gently loosened and removed with Kocher's forceps. The four sutures were tied, but one of them broke. When the heart was set free a jet of blood squirted out to a height of more than 1½ metres. The hæmorrhage was arrested by passing two more sutures. The pericardium was first sutured, and then the thoracic wall in three layers without drainage. The operation at first accelerated the heart's action, but this was considerably slowed at the time of incising the ventricle. The beats fell below 30 for one or two minutes, and then rapidly rose to 56. The respiration momentarily stopped on incising the heart, and the face paled. When the patient was put back to bed the face and lips had lost colour, but this was regained in a few hours. Recovery was uninterrupted. The grenade fragment measured 8 by 4 by 4 mm., and was encrusted with a fragment of endocardium.

Most of the projectiles removed from the heart up to the present were imbedded in its walls. In only 5 of the cases recorded previously by French surgeons was the projectile removed from one of the cavities, and always from the right side—once from the auricle and four times from the ventricle. M. Le Fort has removed 11 foreign bodies from the heart in the course of nine operations—in two cases from cavities of the heart. Only one patient succumbed; all the others were cured.

PULMONARY TUBERCULOSIS AND PREGNANCY.

ALTHOUGH very many contributions to the reciprocal effects of pregnancy occurring in the subjects of pulmonary tuberculosis have been published it is still true that our actual knowledge of the subject remains very imperfect. In respect of active treatment the only conclusion deducible by an unprejudiced student of the literature is simply that each case must be judged individually. A recent investigation by Dr. Th. Begtrup-Hansen[1] affords some new facts of importance. Based on his extensive Scandinavian experience, Dr. Begtrup-Hansen summarises his researches somewhat as follows:—

The clinical material numbered 214 patients—59 from consumption hospitals, 60 from sanatoria, and 95 from lying-in institutions, while an additional 85 cases were gathered from the literature. The material for study was thus fairly eclectic. The first point of inquiry was as to the period of pregnancy at which phthisis appeared or became aggravated, and it is stated that the first symptoms of such were referred by more than half the patients to the first three months. 20 per cent. named the second three months, 16 per cent. the third, and only 4 per cent. specified the puerperium itself; with this anamnesis the results of physical examination tallied very well. When the disease appeared early—i.e., in the first half of pregnancy, its course was distinctly favourable, as shown by decline in temperature, decrease of chest symptoms, but most by pronounced increase in weight. This improvement was most noticeable in hospital and sanatorium, and occurred in all stages of the disease. Puerperal phthisis, on the other hand, behaved altogether differently; 60 per cent. of its subjects got worse, and nearly a third of them died. There were thus, the author concludes, three different phases of tuberculosis in pregnancy. In the first half a critical period with increased vulnerability, then a time of increased resistance in the second half, and, finally, at the puerperium a critical period of grave import. He attempts to explain these findings in what is perhaps a rather roundabout way, relating them with variations of body temperature. Before menstruation the temperature fluctuates and is raised, while it falls during and after the period. During pregnancy the temperature is of pre-menstrual type for the first three or four months and of post-menstrual for the latter half. At the puerperium it is first pre- and then post-menstrual.

If these generalisations are granted the epochs of pre-menstrual type of temperature coincide with the critical epochs of vulnerability to tubercle. Referring to a previous work, the

[3] Maternity and Child Welfare, March, 1918.
[4] The Women's Industrial News, July, 1918.

[1] Internationales Centralblatt für die gesamte Tuberkulose-Forschung, April, 1918.

author explains these temperature fluctuations as due to variations in albumin metabolism, which he found at its height in the first half of pregnancy and in the first week of the puerperium. Finally, the conclusion as regards therapeusis is that conservative treatment in a sanatorium is to be tried in all cases during pregnancy and also after delivery, and that there is no general indication for practising artificial abortion. For this last measure each case, as, indeed, we had surmised, must be judged on individual grounds.

SYSTEMATIC INSTRUCTION IN WAR NEUROSES.

A FIRST course of instruction in shell shock and war neuroses held at the Maudsley Neurological Clearing Hospital having proved successful, with a good attendance of both military and civilian practitioners, the Director-General, A.M.S., has given his approval to a systematic course, extending over three months, which will commence on Sept. 20th. Daily instruction and practice in diagnosis and treatment will be given each weekday, Saturday excepted, from 10 A.M.–12.30 P.M., and from 2–4 P.M.; systematic lectures with demonstrations of illustrative cases on Tuesdays and Fridays at 3 P.M. The syllabus will cover:—

1. The anatomy, physiology, and pathology of the nervous and muscular systems applied to the diagnosis, prognosis, and treatment of shell shock and war neuroses.
2. The physiological and pathological conditions underlying shock—emotional, commotional, and surgical.
3. The methods of examining cases of functional nervous disorders (hysteria, neurasthenia, and psychoses) and the determination of fitness for military service.
4. The methods of differential diagnosis of organic and functional disease and the combined conditions.
5. The diagnosis of conscious simulation (malingering), unconscious simulation, and exaggeration.
6. The general principles of treatment of functional diseases of the nervous system.
7. General aspect of the surgical side of neuro-muscular disabilities.
8. General principles of psychology as applied to war neuroses and shell shock.

The course will be open to all officers in British, Colonial, and American medical services; also to civilian practitioners presenting a letter of introduction from a physician or surgeon attached to a university or hospital medical school. No fees will be charged. Applications should be made to Lieutenant-Colonel F. W. Mott, R.A.M.C., Maudsley Neurological Clearing Hospital, Denmark-hill, London, S.E. 5, who will submit them to the Director-General.

A NEW EMPYEMA TECHNIQUE.

SURGICAL drainage is carried out whenever possible from the most dependent part of a body cavity, but in the case of empyema it is often by no means easy to determine by physical signs the site for incision in order to have gravity entirely in favour of the operator. In the *Military Surgeon* for July, First Lieutenant Thomas R. Sealy, M.R.C., suggests a simple and ingenious technique for discovering the size and shape of an empyema before operation. Having aspirated what pus he can and accurately measured the volume drawn off, he injects through the not-withdrawn needle an exactly equal volume of a mixture of saturated boric lotion with an equal part of mucilage of acacia containing 10 per cent. of barium sulphate or carbonate in suspension. The patient is then at once X rayed, the outline of the empyema is defined, and the chest opened at what is now definitely known to be the most dependent point. In actual practice we believe that several considerations may limit the value of this procedure. In the first place, patients with empyema lie in bed, and the part of the pleural cavity most dependent in the erect position will not be so in the recumbent. Then the empyema patient generally lies on the affected side in order to give the healthy lung more play, making drainage easy wherever the opening is situated. Further, it must not be forgotten that when the cavity of an empyema has been emptied the space left is filled in part by the expansion of the lung, in part, especially in children, by the falling in of the chest wall, and in part by the rising of the diaphragm. An opening made at the most dependent part of the pleura may soon become blocked by the ascent of the diaphragm. Surgeons will, however, find it worth while to bear in mind Lieutenant Sealy's plan.

CAUSES OF DEATH AND INVALIDITY IN AUSTRALIA

THE committee appointed by the Australian Government to report on the causes of death and invalidity in the Commonwealth have brought in their final report.[1] Several of the "progress reports" issued at intervals during the last two years have been noticed in our columns on their appearance. The terms of reference to the committee were briefly as follows: (1) the collection of evidence as to causes of death and invalidity; (2) the indication of suitable measures for their investigation and prevention. The control of public health legislation in Australia at present rests mainly with the Parliaments of the several States, upon whom devolves the duty of maintaining locally an effective Public Health Service. The unit of health administration is the council of each municipality. We are not surprised to learn from the report that the "linking up" of these practically autonomous and independent local authorities leaves much to be desired, and that even where a highly qualified permanent official has been appointed locally he too often lacks competent assistance as well as adequate executive powers. In these circumstances it may well be that the Commonwealth Government would benefit by the experience of the mother country. It has been long recognised in England that, in order to secure the satisfactory discharge of public health functions by widely scattered local municipalities, a coördinating central authority armed with adequate statutory powers is essential. From the present report we gather that the Government of the Commonwealth takes a similar view. It has already assumed, experimentally, certain functions of a preventive character, and, in particular, has committed itself to a rôle of general responsibility, with respect to the maintenance of public health in Australia. In the judgment of the committee there should be, in each State, a competent Minister of Health, each State being divided into districts under the supervision of a medical inspector, responsible only to the supreme authority. The appointment of medical officers of health should be subject to the approval of the same authority, and no medical or other health officer should be removable without that authority's approval. The committee insist that some such organisation as the foregoing is absolutely necessary for progress. All the authorities, central as well as local, must rise to new ideals as to what is implied in the expression "public health." Far from being limited to a merely perfunctory performance of scavenging services, or even to the development of

[1] No. 73. F. 10573. Government Printers, Victoria. Price 3d.

ordinary preventive measures, a public health organisation worthy of the name should mean—in the words of the report—

"The uplifting of the life of the people to new levels, where a robust race would work out its destiny, with the comfort and happiness that are only possible in a well-organised, well-administered State."

Valuable service could be rendered by the Commonwealth in the attempt to secure uniformity in the State health laws and in their administration, in the systematic collection of sanitary data, and in the promotion of health research. Great impetus would be given to progress if the Government would contribute to the cost of appointing medical inspectors throughout Australia, and would invite, at its own expense, an annual conference of the health officers of the several States with the Director of Quarantine. The report is ably compiled, and is signed by three physicians and countersigned by the chairman, Mr. James Mathews, M.P.

WAR-TIME LINIMENTS AND OINTMENTS.

WE referred last week to the Codex Addendum published in the *Pharmaceutical Journal* of August 31st, in which are set out the alternative formulæ for preparations containing lard or vegetable oils, modified in or withdrawn from the British Pharmacopœia, 1914. The addendum, which is published under the direction and by the authority of the Pharmaceutical Society, which alone is responsible for the formulæ and for the publication of them, has been prepared under the auspices of the Scientific Advisory Committee by the Pharmaceutical Society's Codex Subcommittee. We understand that the Home Office Committee appointed in August, 1914, to deal with questions of economy in the use of drugs, propose to draw the attention of the medical profession to these war emergency formulæ in a memorandum which they are issuing on the subject of economy in the use of the substances in question and preparations hitherto containing them. The lard substitute (adeps factitius) is made up as follows: wool fat, 5; hard paraffin, 10; soft paraffin white, 85. Liniment of camphor is made with yellow liquid paraffin, and the other liniments containing liniment of camphor are chloroform, mercury, turpentine, and acetic acid. The liquor cresol saponatus is made up of cresol 50·00 (by weight), linseed oil (by weight) 18·00, potassium hydroxide 4·25, and distilled water by weight to 100 parts. Lard substitute is used in adeps benzoatus, unguenta aconitinæ, atropinæ, cocainæ, iodoformi, and lanæ compositum. Benzoated lard made from lard substitute is suitable for the following unguenta: viz., cantharidini, gallæ, hydrargyri ammoniati, hydrargyri iodidi rubri, hydrargyri oleati, hydrargyri subchloridi, myrobalani, plumbi iodidi, potassii iodidi, staphisagriæ, sulphuris and zinci. No alternative is suggested for ung. hydrargyri nitratis. Lard substitute is also used in the following unguenta: Belladonna, capsicum, mercury (metallic), compound mercury, iodine, and resin. Lastly, tar ointment is made with tar 70 parts, yellow soft paraffin 5 parts, and yellow beeswax 25 parts. The Codex Revision Subcommittee, assisted by two representatives of the Drug Club, may be congratulated on arriving at the above war emergency formulæ, which are generally regarded as quite satisfactory.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Belfast in 1917.

FROM the report of the health of Belfast during 1917, just published, it appears that the Registrar-General estimated the population as 393,000, as against 389,000 in 1916; while the medical officer of health's estimate is 404,115. Under these circumstances, the death-rate of 16·7 per 1000—calculated on the Registrar-General's figures—though equal to the lowest on record, may be even better than it looks. For the 10 years 1907–16, the average death-rate was 18·5. The number of deaths in 1917 was 6557, while the number of births was 8718, giving a natural increase of 2161. The birth-rate continues to fall, being 22·2, while in 1916 it was 24·1. The two unsatisfactory features of the report are the infantile mortality rate, which was 130 per 1000 births, an increase of 17 per 1000 as compared with 1916, and the tuberculosis mortality. Consumption (pulmonary tuberculosis) caused 932 deaths, and other forms of tuberculosis 311. The deaths from consumption show an increase of 102—or more than 12 per cent.—upon 1916, and the total is the highest for the last 11 years. Considering that for some years past more than £30,000 a year has been spent in combating tuberculosis by the City Council of Belfast, the return to the bad times of 20 years ago as regards the incidence of this preventable disease is anything but satisfactory. The weak spot in the maternal and child welfare scheme is the absence of a pre-natal clinic and of provision for maternity treatment.

Ulster Medical Society.

On August 19th, at a meeting of the Ulster Medical Society held in the Medical Institute, Belfast (the President, Dr. W. D. Donnan, in the chair), Major A. Trêves, a French surgeon, gave an interesting account of the steps taken to specialise orthopædic work in France. He emphasised the difference between good and bad amputations, and pointed out that the education of maimed men should be taken in hand as soon as their wounds were healed, and the men convinced that they were still able to work. It had specially to be borne in mind that, as far as France was concerned, 70 per cent. of the soldiers came from country districts and not from cities. Although about 25 per cent. of the maimed were not able to perform the work in which they had been engaged before the war, only 4 or 5 per cent. actually went home saying they would work no more. Major Trêves described fully the methods employed in special workshops in France in teaching men to adapt themselves to other employments. To men requiring artificial limbs he recommended that two appliances should be given when they went home, so that if anything went wrong with one limb they had the other to fall back upon. Special films showing the manufacture of artificial limbs were exhibited and their use in agriculture and carpentry demonstrated. The lecture was much appreciated.

Poor-law Medical Officers' Salaries.

The forced strike of dispensary doctors of the Omagh (co. Tyrone) Union continues, and so far there has been no attendance at the Beragh, Fintona, or Omagh Dispensaries; although it is stated a number of dispensary patients attended, the dispensaries remained closed. The lay press is urging dispensary doctors and boards of guardians "to put their heads together and by mutual good sense to find a reasonable way out of the difficulty" that at present exists in reference to the question of salaries. The whole matter is surely capable of friendly adjustment, but hard-worked dispensary doctors cannot be expected to continue—with the present increased price of living—to do their onerous duties at the pre-war salaries. It is instructive to note that only some £5 10*s.* out of every £100 of salary is paid from the rates, the rest coming from such sources as the Treasury grant under the Probate Duties Act, 1888, and the agricultural grant from the Consolidated Fund under the Local Government Act of 1898. In May of this year it was decided unanimously, at a large meeting of the medical profession held in Dublin, to ask all boards of guardians to make the initial salary for every dispensary £200, rising in 15 years to £300. By a little give and take on both sides this question of the payment of Poor-law medical

officers, which is growing in intensity, might soon be settled. As an earnest of better things the Limavady guardians at a specially convened meeting on August 26th decided to grant to the dispensary doctors increases of £25 per annum.

August 30th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Instruction of Temporary I.M.S. Officers.

A NEW Government school has been opened at Rawalpindi under the command of Major C. Hudson, I.M.S., for the instruction of temporary officers of the Indian Medical Service. The school has three sessions in the year—May 1st to July 21st, Oct. 1st to Dec. 31st, and Jan. 5th to April 14th. All temporary officers will join the school in the first instance, and those already employed will undergo a course of instruction when they can be spared. The syllabus will include discipline, military organisation, practical work in military hospitals, the duties of regimental medical officers and medical units in the field, and also principles of tactics. There will, further, be courses of instruction in military hygiene, practical sanitation, and demonstrations. At the conclusion of each session the students will visit the War and Mayo Hospitals at Lahore and medical institutions at Dehra Dun.

Indore Plague Conference.

At a conference recently called at Indore, Central India, to consider the measures for dealing with plague, attended by the medical officers of the Central Indian States, the following resolutions were agreed to:—

1. That when human or rat plague is present, inoculation of the community with plague vaccine and the vacation of infected dwellings result in a very great saving of life.

2. That vacation of infected dwellings should only be encouraged after arrangements have been made for the temporary housing of the refugees near the town or village site.

3. That uncontrolled evacuation, resulting in the invasion of uninfected localities by numerous plague refugees, may be productive of much harm, and the village and town communities do well in their own interests to afford such people a cold welcome.

4. That organised quarantine measures and the inspection of railway passengers are not recommended.

5. That certain forms of merchandise, especially grain, afford facilities for the transference of rats and rat fleas over long distances, and are more dangerous as vehicles of plague infection than the human being.

The conference was an important one, and attended by the Sanitary Commissioner with the Government of India.

Poisoning in India.

The annual report of the Chemical Examiner to the Government shows that 211 cases of suspected poisoning were submitted to the department last year for investigation, as against 197 cases in 1916. In 124 cases no poison was detected, but in some of these the viscera were already highly decomposed. Poison was detected in 87 cases, the principal poisons found being arsenic, mercury, aconite, and powdered glass. In the United and Central Provinces cases of suspected human poisoning showed a decrease to 367, having numbered 459 and 541 in the preceding two years.

Indigenous Medicine Systems.

The eighth annual session of the All-India Ayurvedic and Unani Tibbi Conference was held at Bombay, with a large gathering of delegates. The Maharaja of Gwalior was a visitor. The Medical Registration Act is regarded as endangering the very existence of practitioners of Indian medical science, and the conference aims at popularising the indigenous system of medicine and producing qualified practitioners of it. The conference claims to have awakened a sense of responsibility among the native practitioners. Medical halls have been opened with approved methods.

New Tuberculosis Sanatorium for Bombay.

The Western Indian Turf Club has given a donation of two lakhs of rupees (£13,000) to the King George Anti-Tuberculosis League for the establishment of a sanatorium and hospital. The Bombay corporation has made grants to the league, and property has been acquired for the erection of the necessary buildings.

August 3rd.

The War.

THE CASUALTY LIST.

THE following medical officers appear among the casualties announced since our last issue:—

Killed.

Capt. J. Jaffé, R.A.M.C., attached Somerset Light Infantry, qualified at Aberdeen in 1913, and prior to joining up was in practice at Uitenhage, Cape Province, South Africa.

Major B. C. Tennent, M.C. and bar, R.A.M.C., was educated at Edinburgh, and qualified in 1910. He held appointments at the Great Northern Central Hospital, London, and at the Great Ormond-street Children's Hospital, London, and afterwards practised in New Zealand. On the outbreak of war he returned to this country, and joined the R.A.M.C. in January, 1915. The award of the M.C. and of the bar were recorded in THE LANCET respectively of Sept. 1st, 1917, p. 361, and of Jan. 12th, 1918, p. 78.

Capt. K. W. Jones, D.S.O., R.A.M.C., qualified at Dublin in 1901. He held appointments at the Swansea General and Eye Hospital, and at the Cork-street Fever Hospital, Dublin, and was in practice in Manchester prior to joining up. The award of the D.S.O. was recorded in THE LANCET of Sept. 11th, 1915, p. 628.

Died of Wounds.

Capt. J. S. Wilson, Australian A.M.C.
Major J. Wells, Australian A.M.C.
Major J. Proctor, R.A.M.C.

Accidentally Drowned.

Lieut.-Col. R. H. Bridges, D.S.O., R.A.M.C., was a student at St. Thomas's Hospital, London, and qualified in 1902. Shortly afterwards he joined the R.A.M.C. The award of the D.S.O. was recorded in THE LANCET of June 7th, 1917, p. 894.

Previously Reported Wounded, now Reported Died.

Capt. T. St.L. Leyshon, South African M.C., received his medical education at the London Hospital and qualified in 1906. Prior to joining the South African contingent he was in practice at Knysna, Cape Province, S.A.

Wounded.

Major F. Ellis, M.C., R.A.M.C.
Lieut. S. B. Turner, R.A.M.C., attached Royal Sussex Regt.
Capt. J. V. Duhig, Australian A.M.C.
Capt. L. M. Pigott, Australian A.M.C.
Capt. J. C. McCullough, Canadian A.M.C.
Capt. J. A. MacKenzie, Canadian A.M.C.
Capt. J. C. Eager, Canadian A.M.C.
Lieut. I. Feldman, R.A.M.C., attached Hussars.
Major F. E. Feilden, R.A.M.C.
Lieut. G. F. Rigden, R.A.M.C., attached Lancs Fusiliers.
Capt. G. S. Douglas, R.A.M.C., attached Hussars.
Capt. Q. V. B. Wallace, M.C., R.A.M.C., attd. Tank Corps.
Capt. S. A. W. Munro, M.C., R.A.M.C., attd. Seaforth High.
Capt. D. R. Wark, Canadian A.M.C.
Capt. T. Warner, R.A.M.C.
Lieut. E. Cansfield, R.A.M.C., attached Border Regiment.
Capt. H. C. Trumble, Australian A.M.C.
Maj. A. D. Stirling, D.S.O., R.A.M.C.
Lieut.-Col. A. H. Habgood, D.S.O., R.A.M.C.
Major A. G. S. Wallace, M.C., R.A.M.C.
Capt. J. S. MacKay, M.C., Australian A.M.C.
Major C. R. Merrilees, Australian A.M.C.

Previously reported Missing, now reported Prisoners in German Hands.

Capt. M. Donaldson, R.A.M.C.
Capt. J. A. Gilfillan, R.A.M.C.
Col. A. Milne-Thompson, C.M.G., M.C., R.A.M.C.
Capt. E. H. Jones, R.A.M.C.
Capt. D. M. Smith, R.A.M.C., attd. Northampton Regiment.
Major A. M. Wood, R.A.M.C.

PERMISSION has been granted to Dr. Jessie Anne Scott to wear the Insignia of the Fourth Class of the Order of St. Sava, conferred by the King of Serbia, in recognition of her services as surgeon at the Scottish Women's Hospital at Ostrovo.

THE Local Government Board and the Ministry of Labour have given their adhesion to a scheme set forth in Circular 103 of the Ministry of Pensions, to give disabled officers and men a preference for temporary vacancies now arising in the service of the State. A committee of the Ministry of Pensions is considering the question of the further employment of such men, subject to the reinstatement of former officials now on active war service.

OBITUARY OF THE WAR.

ROBERT CARMICHAEL ROGERS, M.A., M.B., CH.B. EDIN.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain R. C. Rogers, who died of wounds on August 2nd, at the age of 28, was eldest son of D. Rogers, of Murthly, Perthshire. He was educated at Perth Academy, going on to Edinburgh University, where he graduated M.A. in 1910, and M.B., Ch.B. in 1914. After a house appointment at the Royal Infirmary he went into practice in Mid-Calder. In 1916 he received a commission in the R.A.M.C., and early next year went to France as M.O. to the Royal Garrison Artillery. He was wounded in an air-raid last September, and after more than 10 months of suffering, bravely borne in hospital in France, he finally succumbed to his wounds. Captain Rogers married Mary F. Grant, of Kingussie, in 1915, and leaves a widow and one child.

JOHN CAMERON THOMSON TEGGART, M.B., CH.B. GLASG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain J. C. T. Teggart, who was killed in action on July 21st, was younger twin son of Hamilton Teggart, of Glasgow. He graduated M.B., Ch.B. at Glasgow University in 1912 and then for 18 months held appointments as house surgeon in the Western Infirmary and in the Royal Hospital for Sick Children, Glasgow. When war broke out he was resident surgeon at Johannesburg Hospital, resigning this appointment in 1915 to take a commission in the R.A.M.C. Attached to an artillery brigade, he saw many of the principal engagements on the Western front during a period of three years. He was doing his work amongst wounded gunners during a battle when he was killed instantaneously. His commanding officer writes that Captain Teggart was a capable hardworking officer, whose pluck and keenness were well known throughout the division. "He always shone in positions of danger where initiative and true courage were essential."

Captain ROY ALLAN SILLAR, A.A.M.C., who was accidentally killed on June 30th by a fall from his horse, was a native of Dubbo, N.S.W. Matriculating at 16 years of age, he entered St. Andrews College, Sydney University, and did well both in his medical studies and in the athletic field. After completing his medical course he was resident M.O. at St. Vincent's Hospital, Darlinghurst, and for a few months visiting M.O. at the Women's Hospital there. He enlisted in the A.I.F. at the end of 1917, and in April, 1918, reached England, where he was posted to No. 4 Command Depôt. An officer of Captain Sillar's unit speaks of his strong personality and his bright and sunny nature, which won the hearts of all with whom he came in contact.

WALTER HENRY LLOYD, M.B., B.S. LOND.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain W. H. Lloyd, who was killed in action in France on August 4th, at the age of 27 years, was son of Walter Lloyd, J.P., of Carmarthen, and nephew of William Lloyd, F.R.C.S. Edin. He was educated at Queen Elizabeth Grammar School, Carmarthen, and took his medical course at Middlesex Hospital, obtaining the Conjoint qualification in July, 1915, and the M.B., B.S. Lond. later while on active service. After joining the R.A.M.C. he was attached for nine months to the 3rd London General Hospital, and in June, 1916, was sent to a casualty clearing station in France. More recently he was transferred to the London Regiment, with which he met his death while attending to wounded.

Captain Lloyd was an enthusiast both at work and play. One surgical chief writes of him as a delightful dresser, always helpful and inspiring. Another who gave him a considerable amount of experience in practical surgery states that he had never met with a more apt pupil. "He was able, skilful, and excellent in his work. But beyond all that he had a special personal charm that endeared him to all who knew him."

ALEXANDER BOYD FOOTT, L. & L.M. R.C.P. & S.I.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain A. B. Foott, who died in Egypt on July 21st, was 26 years of age, and son of the late Dr. St. John Foott, of Cork. He was educated at Monmouth Grammar School and Queen's College, Cork, qualifying in 1914, when he became resident surgeon at the Cork Eye, Ear, and Throat Hospital. He resigned this post in August of the same year to take a commission in the R.A.M.C., going to France in the following November. He was wounded at Loos in October, 1915. He went to India in June, 1916, was invalided home with sandfly fever, and went to France again in November, where he fell a victim to trench fever. In June of the present year he was sent to Egypt, where he died of malaria.

Captain THOMAS WHITMORE, C.A.M.C., who died of wounds on August 8th, aged 29 years, was a native of Dauphin, Manitoba. He graduated in medicine at the Manitoba University in May, 1915, and shortly after joined the C.A.M.C., and left for England in August. He served as Regimental M.O. until June, 1917, when he was posted to Granville Special Hospital, where he remained for a year before going to France to join the 3rd Canadian Field Ambulance, and later the 5th Canadian Battalion, with which he was serving when he received his fatal wounds.

Captain MALCOLM ARCHIBALD MCKECHNIE, C.A.M.C., who died as the result of wounds received on August 8th, aged 29 years, was a native of Gillies Hill, Ontario. He

graduated in medicine at Queen's University, Kingston, in 1914, left Canada for service overseas in November, 1916, and went to France in March, 1917. He was posted to the 6th Canadian Field Ambulance, serving for short periods with various units.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Lieut. J. B. P. Wells, Bedfordshire Regiment, died from wounds as a prisoner of war, son of Dr. A. P. Wells, of Victoria, British Columbia.

Lieut. P. Young, Middlesex Regiment, attached Machine Gun Corps, died of wounds, seventh son of the late Dr. E. Young, of Hawkhurst, Kent.

Lieut. K. S. Courtenay, Dorset Regiment, killed in action, only son of Dr. K. J. Courtenay, of Wareham, Dorset.

Capt. V. J. Whitaker, Lincs Regiment, attached R.F.C., previously reported missing, now officially presumed killed in action, April, 1917, second son of Mr. J. Smith Whitaker, of the National Health Insurance Committee, Buckingham Gate, London, S.W.

Lieut. R. L. Cummings, Australian Flying Corps, accidentally killed, second son of Dr. H. L. Cummings, of Tasmania, Australia.

Second Lieut. E. W. B. Maggs, King's Royal Rifle Corps, killed in action, only son of Mr. W. A. Maggs, of Upper Wimpole-street, London, W.

Major J. H. M. Hardyman, acting Lieut.-Col., Somerset Light Infantry, M.C., killed in action, eldest son of Dr. G. Hardyman, of Bath.

Second Lieut. E. N. Andrews, The Buffs, died of wounds, youngest son of Dr. E. C. Andrews, of Hampstead, London.

Lieut. J. M. H. Gerrard, R.F.A., died of wounds, eldest son of Major-General J. J. Gerrard, C.B., A.M.S.

THE HONOURS LIST.

The decorations conferred upon the following officers are for services rendered in connexion with the military operations in German South-West Africa:—

South African Medical Corps.

C.M.G.—Col. H. J. M. Buist, D.S.O., attached, from R.A.M.C.; Lt.-Col. R. P. McKenzie, R. of O.

O.B.E.—Maj. H. E. Brown; Capt. (temp. Maj.) T. F. Cope.

South African Medical Service.

D.S.O.—Lt.-Col. S. Meyer de Kock; Maj. L. G. Haydon; Lt.-Col. G. H. Knapp; Capt. G. B. Moffatt.

Military Cross.—Capt. J. E. Briscoe, D.S.O. (R. of O.); Capt. G. J. Cillie; Capt. (now acting Maj.) T. J. W. A. Johnston; Capt. J. J. Lynch; Capt. A. E. Oakley; Capt. (temp. Maj.) J. Pratt-Johnson; Capt. (temp. Maj.) R. N. Pringle, D.S.O.; Capt. F. K. Te Water; Capt. (temp. Maj.) J. A. Thwaits; Capt. (temp. Maj.) R. H. Welsh.

The following promotions and decorations are for services rendered in connexion with the military operations in Mesopotamia:—

C.B.—Col. W. H. Starr, C.M.G., ret. pay, A.M.S.

C.M.G.—Lieut.-Col. (temp. Col.) G. G. Delap, D.S.O., R.A.M.C.; Temp. Maj. (temp. Lieut.-Col.) R. Davies-Colley, R.A.M.C.

I.E.—Lieut.-Col. F. W. Gee, I.M.S.; Lieut.-Col. H. G. Melville, I.M.S.; Maj. (temp. Lieut.-Col.) G. Macpherson, I.M.S.; Maj. N. E. H. Scott, I.M.S.; Maj. W. R. J. Scroggie, I.M.S.

To be Brevet Major.—Capt. F. C. Cowtan, R.A.M.C.; Capt. A. MacD. Dick, I.M.S.; Capt. T. J. C. Evans, M.C., I.M.S.; Capt. A. H. Gosse, R.A.M.C.; Capt. S. W. Kyle, R.A.M.C.

D.S.O.—Maj. W. V. Coppinger, I.M.S.; Capt. and Bt. Maj. T. J. Mitchell, R.A.M.C.; Maj. (temp. Lt.-Col.) A. H. Proctor, I.M.S.

Military Cross.—4th Class Asst. Surg. A. N. de Monte, Ind. Sub. Med. Dept.; Temp. Lieut. E. A. M. J. Goldie, I.M.S.; Temp. Capt. J. A. Noble, R.A.M.C.; Temp. Capt. K. N. Purkis, R.A.M.C.; Lieut. (temp. Capt.) R. R. Thompson, R.A.M.C.

The following are the statements of service for which the decorations recorded in THE LANCET of April 6th, 1918, p. 516, were conferred. All are members of the R.A.M.C. unless otherwise stated:—

Military Cross.

Capt. ALAN COLPITTS AINSLEY.—For conspicuous gallantry and devotion to duty. Whilst attending to a man seriously wounded a shell burst within a few yards of his position and knocked him down. Despite this he continued with his work, and showed the greatest coolness and devotion to duty throughout the day.

Temp. Lieut. V. K. APTE, I.M.S.—For conspicuous gallantry and devotion to duty. He attended to the wounded during an action with great courage and coolness.

Lieut. CLAUDE WELLS WOOLLOTON BAXTER, I.M.S.—For conspicuous gallantry and devotion to duty. When under heavy shell and rifle fire he displayed great gallantry and devotion to duty in attending to and evacuating the wounded. His services proved of inestimable value.

Temp. Capt. WILLIAM KENNETH BIGGER.—For conspicuous gallantry and devotion to duty. He personally assisted in getting his wounded away from the dressing station under heavy machine-gun and rifle fire. Previous to this he had gone out from the dressing station on several occasions to tend the wounded at a time when no stretcher-bearers were available. He showed great gallantry and devotion to duty.

Capt. WILLIAM EDWARD HUGH BULL.—For conspicuous gallantry and devotion to duty. When in charge of a bearer section and collecting post he worked under shell and rifle fire, and with a few stretcher-bearers collected and tended a number of wounded cases under conditions demanding the utmost coolness, gallantry, and determination, qualities which he displayed in the highest degree.

Temp. Capt. NICHOLAS MARSHALL CUMMINS.—For conspicuous gallantry and devotion to duty. He gave valuable assistance to a unit after a successful attack in the organisation of stretcher-bearers, and he also organised several parties at night, which he conducted into "No Man's Land," for the purpose of recovering wounded cases. He worked on until every case had been evacuated, when he collapsed from exhaustion. His courage and devotion to duty were of the highest order.

Capt. CHARLES AUBREY GODSON, I.M.S.—For conspicuous gallantry and devotion to duty during an attack. All day he organised stretcher parties and collected the wounded, often under shell fire, and at night searched the whole area covered by the attack and cleared it of all the wounded. It was largely due to his courage and initiative that the evacuation of the wounded was carried out so successfully.

Capt. WILLIAM GOLDIE.—For conspicuous gallantry and devotion to duty when in charge of a collecting station, in advance of the advanced dressing station, during an attack. The rapid and successful evacuation of the wounded was due to his untiring zeal and energy. He showed magnificent courage and coolness under heavy fire, and set a splendid example to those under him.

Temp. Capt. BENJAMIN KNOWLES.—For conspicuous gallantry and devotion to duty. He was wounded at the beginning of an enemy attack, but returned to his aid-post and remained there, attending to the wounded throughout with great determination and coolness.

Capt. PERCIVAL JOHN MOIR.—For conspicuous gallantry and devotion to duty. While he was leading a party of 30 men and 8 camels to a forward position in order to establish an advanced dressing station the party came under heavy shell fire. He at once got his party under cover, unloaded the camels, and then got his medical stores forward under continuous shell fire. His promptness and courage not only prevented casualties, but enabled the advanced dressing station to be established at the earliest possible moment.

Capt. CHARLES NEWTON-DAVIS, I.M.S.—For conspicuous gallantry and devotion to duty. During the attack, and when the battalion was brought to a standstill by frontal and enfilade fire of all kinds, he exposed himself continually in moving from place to place to render aid to wounded cases. It was owing to his courage, devotion to duty, and skilful organisation that the wounded were successfully collected and evacuated.

Temp. Capt. REX STANSFIELD.—For conspicuous gallantry and devotion to duty during an engagement. He carried his medical pannier forward through a heavy barrage and moved about under heavy shell fire over the captured ground, collecting and bringing in the wounded. He set a splendid example of courage and devotion to duty.

Capt. BRYAN MONTAGUE TUKE, Spec. Res.—For conspicuous gallantry and devotion to duty. He went forward himself with the attacking companies, and throughout the engagement kept moving from one part of the line to another in full view of the enemy, attending to the wounded with the greatest promptitude and courage.

Capt. RANKINE GREIG WALKER.—For conspicuous gallantry and devotion to duty. He was in charge of an advanced dressing station during two engagements, and carried out his duties with great courage and skill, often under heavy shell fire.

BROUGHT TO NOTICE.

The names of the following medical officers, all members of the South African Medical Corps, have been brought to the notice of the Secretary of State for the Colonies for distinguished service in the field and in connexion with the campaign in German South-West Africa, 1914–15:—

Capt. C. V. Anderson; Maj. H. E. Brown; Lt.-Col. J. I. Brownlee, D.S.O., V.D.; Col. H. J. M. Buist, D.S.O., attached from R.A.M.C.; Capt. A. W. Burton; Capt. D. Campbell-Watt; Capt. W. R. Chew; Capt. W. S. Cottrill; Capt. D. J. Dauth (R. of O.); Lt.-Col. S. M. De Kock; Capt. J. F. van der S. De Villiers; Capt. J. W. De Vos; Capt. A. D. Edington; Capt. L. K. Edmeades; Capt. R. Friel; Maj. T. A. Fuller (R. of O.); Capt. J. F. R. Gairdner; Capt. A. I. Girdwood; Capt. R. L. Girdwood, D.S.O.; Capt. C. Grobbelaar; Capt. A. Groenewald, M.C. (deceased); Capt. (temp. Maj.) E. T. E. Hamilton (deceased); Maj. L. G. Haydon; Lt.-Col. J. Hewat (R. of O.); Capt. (temp. Maj.) D. Horwich; Capt. G. J. Joubert, M.C.; Lt.-Col. G. H. Knapp; Capt. S. Leibson, M.C.; Capt. C. F. L. Leipoldt; Capt. J. J. Levin; Capt. A. H. Louw, M.C., Permanent Force (Staff); Maj. G. D. Maynard; Capt. W. W. McCowat; Maj. J. R. McGregor; Lt.-Col. R. P. McKenzie (R. of O.); Maj. M. W. McLoughlin, D.S.O. (Supernumerary List); Maj. R. Milner-Smyth; Maj. J. A. Mitchell; Capt. G. B. Moffat; Maj. H. A. Moffat, D.S.O. (R. of O.); Capt. (temp. Maj.) C. T. Moller; Capt. R. C. Mullins; Lt.-Col. H. T. Murcell; Maj. F. H. Napier; Capt. C. M. Neale-May; Maj. A. M. Neethling; Capt. P. la F. Nortje; Capt. A. J. Ortlepp; Maj. (temp. Lt.-Col.) B. A. Odlum (Capt. R.A.M.C.); Maj. M. G. Pearson; Maj. F. Pershouse; Lt.-Col. C. Porter (R. of O.); Capt. J. Z. H. Rosseau; Maj. R. A. St. Leger; Capt. T. L. L. Sandes, O.B.E.; Maj. W. B. Skinner, D.S.O.; Maj. P. Skinner-Clark, D.S.O.; Capt. C. P. Theron (R. of O.); Maj. E. N. Thornton, O.B.E.; Capt. R. M. Truter; Maj. (temp. Lt.-Col.) G. H. Usmar; Maj. P. J. Van Coller; Maj. (temp. Lt.-Col.) A. B. Ward, D.S.O.; Maj. J. H. Whitehead, D.S.O.; Capt. E. F. B. Wilson (R. of O); Capt. W. O. Wilson.

MENTIONED IN DESPATCHES.

The names of the following medical officers are mentioned for distinguished and gallant services and devotion to duty in a despatch received from Lieut.-Gen. W. R. Marshall, K.C.B., K.C.S.I., Commander-in-Chief of the Mesopotamia Expeditionary Force:—

Army Medical Service.—Col. (temp. Maj.-Gen.) A. P. Blenkinsopp, C.B., C.M.G.; Col. W. T. Mould; Col. W. H. Starr, C.M.G.

Royal Army Medical Corps.—Capt. W. H. Biggs (T.F.); Capt. A. E. Bonham (T.F.); Temp. Capt. D. F. Borrie; Temp. Capt. J. T. Bowman, D.S.O.; Capt. K. P. Brown (S.R.); Temp. Capt. J. A. G. Burton; Temp. Capt. W. M. Cameron (S.R.); Temp. Capt. W. Campbell; Lt.-Col. (Temp. Col.) E. W. W. Cochrane, D.S.O.; Capt. V. Z. Cope (T.F.); Capt. F. C. Cowtan; Maj. and Bt. Lt.-Col. (acting Lt.-Col.) H. J. Crossley; Temp. Capt. L. W. Davies; Temp. Lt.-Col. R. Davies-Colley; Lt.-Col. (temp. Col.) G. G. Delap, D.S.O.; Capt. W. Dunlop (S.R.); Temp. Capt. A. R. Elliott; Temp. Capt. C. L. Emmerson; Lt.-Col. and Bt. Col. M. H. G. Fell, C.M.G.; Temp. Capt. G. J. C. Ferrier (Lt., Canadian A.M.C.); Maj. (temp. Lt.-Col.) F. E. Fremantle (T.F.); Capt. H. L. Garson (S.R.); Temp. Capt. A. T. Gibb; Temp. Lt. (temp. Capt.) G. T. Gimlette; Temp. Capt. E. N. Glover; Capt. A. H. Gosse (T.F.); Lt.-Col. (temp. Col.) S. F. StD. Green; Capt. T. P. Inglis (S.R.); Temp. Lt. E. Jamieson; Temp. Capt. E. Kidd; Capt. S. W. Kyle; Temp. Capt. C. G. MacKay; Temp. Capt. G. S. Marshall; Capt. A. N. Minns, D.S.O., M.C.; Capt. J. P. Mitchell (S.R.); Capt. and Bt. Maj. T. J. Mitchell; Temp. Capt. H. H. Raw; Capt. H. G. Robertson; Capt. E. A. Strachan; Maj. N. D. Walker; Temp. Capt. W. E. Waller; Capt. A. Watson, D.S.O.; Temp. Capt. C. A. Weller; Capt. (acting Maj.) H. M. Williams (S.R.); Capt. F. T. H. Wood (T.F.); Capt. W. B. Wood (S.R.).

Indian Medical Service.—Maj. (acting Lt.-Col.) R. M. Barron, D.S.O.; Capt. A. C. L. O'S. Bilderbeck; Maj. (acting Lt.-Col.) L. P. Brassey; Capt. H. H. Brown; Maj. S. R. Christophers, C.I.E.; Maj. (temp. Lt.-Col.) W. V. Coppinger; Maj. (acting Lt.-Col.) H. M. Cruddas, C.M.G.; Temp. Lt. A. Y. Dabholkar, M.C.; Capt. A. M. Dick; Capt. T. J. C. Evans, M.C.; Lt.-Col. F. W. Gee; Temp. Lt. S. C. S. Gupta; Capt. A. H. C. Hill; Capt. R. W. G. Hingston, M.C.; Maj. (acting Lt.-Col.) H. Innes; Lt.-Col. T. B. Kelly, D.S.O.; Maj. W. H. Leonard; Capt. A. P. G. Lorimer; Capt. R. F. D. Macgregor, M.C.; Maj. F. P. Mackie; Lt.-Col. R. H. Maddox; Lt.-Col. G. McPherson; Maj. W. A. Mearns; Lt.-Col. H. G. Melville; Capt. J. B. de W. Molony; Maj. D. Munro, C.I.E.; Temp. Lt. B. P. B. Naidu; Capt. J. J. H. Nelson, M.C.; Capt. M. A. Nicholson; Temp. Lt. C. E. R. Norman; Maj. (acting Lt.-Col.) A. H. Proctor; Capt. M. Purvis; Maj. W. R. J. Scroggie; Capt. J. L. Sen, M.C.; Capt. A. L. Sheppard; Lt. B. H. Singh; Capt. C. J. Stocker, M.C.; Capt. A. J. Symes; Maj. W. Tarr; Capt. W. O. Walker; Capt. W. L. Watson; Capt. F. P. Wernicke; Lt.-Col. (temp. Col.) C. N. C. Wimberley, C.M.G.; Maj. W. D. Wright; Maj. (acting Lt.-Col.) G. J. G. Young.

Indian Subordinate Medical Department.—1st Class Asst. Surg. G. A. S. Howatson; 2nd Class Asst. Surgs. H. A. Fox, G. H. Lawrance, H. B. Rosair; 3rd Class Asst. Surgs. A. F. G. D'Arcy, D.C.M., H. N. Murphy; 4th Class Asst. Surgs. F. M. Graham, V. M. Matthews, F. C. Vanderwart, J. F. de S. Vincent.

FOREIGN DECORATIONS.

French.

Legion of Honour.—Officer: Dep. Surg.-Gen. A. G. Wildey, R.N.; Col. C. K. Morgan, C.M.G., R.A.M.C. *Chevalier:* Fleet-Surgs. F. J. A. Dalton, C.M.G., R.N.; R. D. Jameson, R.N.; and A. J. Hewitt, R.N.

Croix de Guerre.—Capt. A. D. Edington, South African M.C.; Capt. G. J. Joubert, M.C., South African M.C.; Capt. W. W. McCowat, South African M.C.; Capt. F. Ward, R.A.M.C.; Temp. Capt. C. T. I. Clarke, R.A.M.C.; Temp. Maj. C. M. Row, R.A.M.C.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

N. A. Scott and R. D. Lockhart to be temporary Surgeons.

ARMY MEDICAL SERVICE.

Temp. Col. Sir Charles A. Ballance, K.C.M.G., C.B., M.V.O. (Captain, R.A.M.C., T.F.), relinquishes his temporary commission on re-posting, and is granted the honorary rank of Colonel.

The undermentioned Colonels retire on retired pay: E. Eckersley, F. W. G. Gordon-Hall, C.B.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonels to be acting Colonels whilst in command of a Medical Unit: C. R. Evans, H. Simson, W. Riach.

Lieut.-Col. Harry A. L. Howell to be acting Colonel whilst employed as Assistant Director of Medical Services of a Base.

Brevet Lieut.-Col. (temp. Lieut.-Col.) S. L. Pallant, D.S.O., retains the temporary rank of Lieutenant-Colonel whilst in command of a General Hospital.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on re-posting:—Majors G. E. Ferguson, A. S. Littlejohns, R. P. Lewis, R. B. Hole; Capt. J. J. O'Keefe.

Temp. Capt. (temp. Lieut.-Col.) C. D. Pye-Smith retains the temporary rank of Lieutenant-Colonel whilst in command of a Casualty Clearing Station.

To be acting Lieutenant-Colonels: Maj. R. G. H. Tate, Temp. Capt. (acting Major) H. Stokes, Capt. (Brevet Major) H. H. Blake, Temp. Major C. E. M. Lowe, Major G. A. D. Harvey.

The undermentioned relinquish the acting rank of Major on re-posting:—Temp. Major C. H. Miller; Capts. A. P. O'Connor, D. C. Monro; Temp. Capts. J. L. Jackson, T. F. Saunders, H. F. Warwick, J. Gibson, R. Hodson, C. M. Kennedy, C. H. G. Prance; Lieut. (temp. Capt.) W. H. Ferguson.

The undermentioned Majors to be acting Lieutenant-Colonels whilst in command of Medical Units: F. E. Rowan-Robinson, R. K. White, D.S.O.

Temp. Major D. Gillespie, having ceased to be employed at the Wharncliffe War Hospital, relinquishes his commission.

Temp. Major A. Stewart to be temporary Lieutenant-Colonel whilst employed at Whipps Cross War Hospital.

Temp. Major B. F. Eliot to be acting Lieutenant-Colonel whilst specially employed.

Temporary Captains to be acting Majors whilst specially employed: G. T. Gifford, S. Brown, W. Brown, W. S. Edmond, N. Dunn, C. M. Kennedy.

Temp. Capt. G. S. Hett to be acting Major (without increased emoluments) whilst specially employed.

Capt. A. C. Hammond-Searle to be acting Lieutenant-Colonel whilst in command of a Medical Unit.

Capt. (acting Major) Ernest D. Caddell to be acting Lieutenant-Colonel whilst specially employed.

To be acting Majors: Capts. A. P. O'Connor, F. G. A. Smyth, W. W. MacNaught, T. C. R. Archer, J. L. Wood; Temp. Capts. P. R. Woodhouse, H. Stokes, E. G. D. Pineo, E. Nuttall, G. V. T. McMichael, J. B. Alexander, J. Hendry, J. W. Elliott, F. H. Moxon, J. Gibson, H. F. Warwick, M. W. B. Oliver, J. E. Pellow, F. W. Wesley, A. A. O'Connor, J. M. Forsyth, W. L. Johnson, P. M. Heath, E. W. Milne, H. Parsons, G. W. R. Rudkin, C. A. Brisco.

To be temporary Captains: E. B. Morley, R. L. Davies, J. G. Leslie, S. Melville, G. H. L. Fitzwilliams, N. W. Walmsley, C. McShane, W. Tregenza, G. McGregor, C. A. Skelly, A. R. Rendle.

Temporary Lieutenants to be temporary Captains: C. W. W. James, G. L. Gall, W. G. Cobb, V. M. Walsh, R. W. Rix, C. W. Cunnington, McK. T. W. Steedman, D. Higgins, F. G. Smyth, G. P. Humphry, E. L. Jones, J. I. Greig, C. H. Waddell, D. C. Dobell, J. K. Holland, H. N. K. Kevin, A. C. Farlinger, G. W. Bissett, W. Tudhope, C. U. Whitney, G. T. Drummond, I. Ridge-Jones, W. L. Locke, H. W. Crowe, P. McFadyen, J. Muckart, J. R. C. Gordon, J. E. Measham, L. H. D. Thornton, J. Magill, W. A. Dewhirst, D. G. Pearson, W. C. Fragoso, R. B. Johnston, A. Simpson, D. J. Smith, R. Edridge, H. McC. Fleming, A. F. Miller, R. S. Harper, S. Southall, J. J. Bekenn, O. C. Gruner, S. G. Gordon, J. P. S. Dunn, F. G. Sergeant, W. G. Masefield, A. W. Soper, P. Howe, W. H. Eggar, J. T. B. Hall, M. F. Huston, J. H. Dove, R. G. Ball, A. Vost, T. A. Ross, J. R. McGregor, L. W. Forsyth, T. J. Little, R. T. Stoney, O. G. Evans, A. C. Strain, T. J. Lyons, B. R. Billings, E. S. Ellis, J. R. Liddell, E. L. Clay, J. C. Drysdale, H. B. Ellison, H. Galloway, J. Brown, G. G. Macdonald, G. S. Banks, J. P. F. Waters, A. B. S. Todd, C. M. Pennefather, S. A. Day, A. Dixon, J. R. Prytherch, J. E. Lucas, W. C. Fowler, T. R. Evans, F. O'B. Ellison, J. M. S. Wood, J. T. Hill, C. Peacock, J. H. Fenn, A. S. Wilson, A. S. Griffith, T. F. Pugh, A. C. Sharp, H. Widdas, W. B. Wilson, J. Brierley, N. V. Mitton, A. S. Morley, W. R. Bayne, R. B. Kinloch, A. H. M. Saward.

To be temporary Lieutenants: Hon. Lieut. C. H. G. Gostwyck, T. E. Coulson, A. Leigh, B. H. Stewart, A. W. Radie, J. A. P. Cullen, R. F. McN. Scott, F. P. R. James, F. W. Hobbs, E. B. Bate, H. F. Hutchinson, E. Burnet, H. J. Cundell, R. M. D. Devereux, J. Loftus.

Temp. Capt. J. Fairley is seconded for service with Egyptian Army.

F. W. S. Stone and A. G. Watson, late temporary Captains, are granted the honorary rank of Captain.

H. Case, late temporary Captain, and J. J. McConnell, late temporary Lieutenant, are granted the honorary rank of Lieutenant.

Officers relinquishing their commissions: Temp. Major A. Johnston (on account of ill-health, and is granted the honorary rank of Major); Temp. Capts. J. S. Ross, J. F. G. Richards, W. C. Lattey (on account of ill-health contracted on active service, and is granted the honorary rank of Captain), C. A. A. Dighton (on account of ill-health, and is granted the honorary rank of Lieutenant), T. Bennett, J. G. F. Heal, R. Power, A. J. Neilson, A. G. Graham, A. Ramsay, A. Wilson, E. R. Tweed, R. Rutherford, M.C. (and to be granted the honorary rank of Captain), S. J. Brennan, W. Dickson, M. Lyons, R. N. Weekes, A. M. J. Halligan, P. G. Temple (and to be granted the honorary rank of Captain), R. H. Bridge, H. P. Hall, F. D. Johnson, C. H. Wilson (on account of ill-health, and is granted the honorary rank of Lieutenant), P. L. Moore, R. W. Statham, J. I. Baeza, (Acting Major) J. P. Good, W. Craik, C. R. Whittaker (on account of ill-health contracted on active service, and is granted the honorary rank of Captain), T. W. N. Dunn (on account of ill-health, and is granted the honorary rank of Captain).

Temp. Hon. Capt. H. P. Thompson relinquishes his commission on ceasing to be employed with St. John Ambulance Brigade Hospital.

Temporary Lieutenants relinquishing their commissions: J. G. Cooper, M. Shipsey, J. P. Doyle, T. S. Greenaway, B. J. O'Donnell, W. J. Taggart, J. A. Brown, P. R. Chevreau.

Temp. Qrmr. and Hon. Major I. D. Carson to be temporary Honorary Major, with pay and allowances, and to retain grading for purposes of pay as a D.A.D.M.S. on relinquishing appointment of temporary Quartermaster.

SPECIAL RESERVE OF OFFICERS.

Captains to be acting Majors: E. R. Lovell, W. F. Wood, L. S. B. Tasker, W. J. Adie, A. J. Gilchrist, C. V. Nicoll, J. P. Davies.

The undermentioned to be Lieutenants: F. K. Escritt (from University of London Contingent, O.T.C.), A. C. Paterson, E. A. Leak (from University of London O.T.C.), J. W. Mann (from University of Aberdeen Contingent, O.T.C.).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Capt. (Brevet and acting Major) J. Ewing, Capt. (acting Major) J. W. Thomson, Capt. (acting Major) J. Morris, Capt. (acting Major) G. M. Benton, Capt. (acting Major) C. H. K. Smith, and Capt. (acting Major) O. W. D. Steel, M.C., relinquish their acting rank on ceasing to be specially employed.

Capt. (acting Major) D. J. Scott relinquishes his acting rank on vacating appointment as Deputy Assistant Director of Medical Services and is restored to establishment.

Capts. J. Tait, R. J. Chapman, W. Simpson, J. Morris, E. Moir, F. Wigglesworth, H. A. Lucas, E. L. Forward, G. Potts, S. R. R. Matthews, L. A. Dingley, A. M. Johnson, W. W. Greer, M.C., and R. C. Neil to be acting Majors whilst specially employed.

Major J. D. Comrie to be acting Lieutenant-Colonel whilst specially employed, and remain seconded.

Capt. (acting Major) W. Simpson and Capt. J. N. Hunt to be acting Lieutenant-Colonels whilst specially employed.

Capt. C. C. Cuthbert, Capt. (Hon. Col.) Sir Charles A. Ballance, and Capt. A. W. Nuthall are restored to the establishment.

Capt. A. E. Ridsdale and Capt. A. N. S. Carmichael to be Deputy Assistant Directors of Medical Services and to be acting Majors whilst so employed.

Capt. (acting Major) A. W. W. Hayles relinquishes his acting rank on ceasing to be so employed.

Capt. W. C. D. Maile relinquishes his commission on account of ill-health caused by wounds, and is granted the honorary rank of Captain.

Capt. H. G. W. Dawson to be acting Major, with pay and allowances of his substantive rank.

Capt. (acting Lieut.-Col.) O. K. Wright relinquishes the acting rank of Lieutenant-Colonel and reverts to the acting rank of Major.

Capt. S. R. Foster, M.C., to be Deputy Assistant Director, Medical Services and to be acting Major whilst so employed.

Capt. (acting Major) F. L. A. Greaves to be acting Lieutenant-Colonel whilst specially employed.

Major (acting Lieut.-Col.) W. A. Burns and Major (acting Lieut.-Col.) A. C. Turner, D.S.O., relinquish their acting rank on ceasing to command a Field Ambulance.

Capt. (temp. Major) R. B. Carslaw to be Major.

Capt. A. Avent relinquishes his commission on account of ill-health and is granted the honorary rank of Captain.

Major (temp. Lieut.-Col.) A. R. Henchley relinquishes his temporary rank on ceasing to command a casualty clearing station.

Capt. H. Middleton relinquishes his commission on account of ill-health contracted on active service, and is granted the honorary rank of Captain.

Capt. R. Sanderson is restored to the establishment.

Capt. H. H. Brown relinquishes his commission on account of ill-health.

Major (temp. Lieut.-Col.) C. R. White, D.S.O., relinquishes his temporary rank on ceasing to command a casualty clearing station.

Capt. (acting Major) H. C. C. Hackney relinquishes his acting rank on ceasing to be specially employed.

The announcement regarding Capt. A. McLean which appeared in the *London Gazette* of August 10th, 1918, is cancelled.

Capt. A. McLennan is seconded for duty with a General Hospital.

Lieuts. J. P. M. Dowdall and M. Canton to be Captains.

Capts. A. Ayre-Smith and W. Y. Martin to be Majors.

TERRITORIAL FORCE RESERVE.

Capt. R. W. Simpson, from Attached to Units other than Medical Units, to be Captain.

ROYAL AIR FORCE.

Medical Branch.—H. V. Wells (Fleet Surgeon, R.N.) is granted a temporary commission as Lieutenant-Colonel.

The undermentioned are granted temporary commissions as Captains: P. L. Moore (late Captain, R.A.M.C.), P. T. J. O'Farrell, R. Hall, M. C. Breese, I. de B. Daly.

The undermentioned are granted temporary commissions as Lieutenants: J. G. Bird, J. Ferguson, S. E. Duff.

Dental Branch.—S. C. Turner and V. E. Mills are granted temporary commissions as Lieutenants.

OVERSEA FORCES.

South Africa.

South African Medical Corps: Lieut.-Col. (temp. Col.) A. B. Ward, D.S.O., relinquishes the rank of temporary Colonel.

INDIAN MEDICAL SERVICE.

The King has approved the grant of the temporary rank to the undermentioned:—To be temporary Captain: G. H. K. Macalister. To be temporary Lieutenants: Bola Dayanand Rao, Gopalkrishna Ramrao Padbidri, Pascal Desouza, Jehangir Hormasji Clarke, Duriseti Narayanarao, Inglis Folger Frost, Abdul Kadir Muhammad Mahiuddin, Alexander Noble, Dinesh Chandra Chakrabatti.

The King has approved the relinquishment of the temporary rank of Lieutenant by A. M. Ahmad.

The King has approved the retirement of Lieut.-Col. N. P. O'G. Lalor, in consequence of ill-health.

Cols. C. C. Manifold and P. Hehir become Surgeons-General.

Lieut.-Col. J. G. Gordon has retired from the Service.

Surg.-Gen. Robinson has been nominated an additional Member of the Bengal Legislative Council.

Bt. Col. R. Heard has been appointed Honorary Surgeon to the Viceroy.

Major-Gen. W. H. B. Robinson has been appointed President of the Governing Body of the Bengal Medical Faculty, and Lieut.-Col. C. R. Stevens a member of the Governing Body.

Promotion of I.M.S. Officers.

The differentiation in regard to promotion to which officers of the Indian Medical Service have been subjected during the war has given rise to considerable comment. It is now announced that Captains of the Indian Medical Service will, if recommended, receive accelerated promotion to the same extent as has already been granted to Captains in the Royal Army Medical Corps on account of the war. The extent of such acceleration will be notified in the *Gazette of India* in due course. Acting rank will be granted to an officer of the Indian Medical Service officiating in an appointment in the field under the rules governing the grant of such rank in the Indian Army where applicable.

Two New Indian Surgeons-General.

Owing to the block in promotion which has been experienced for some time past it has been decided, with the approval of the Secretary of State for India, to create, for the period of the war, two additional appointments carrying the rank of Surgeon-General, such appointments to be filled by officers of the Indian Medical Service in military employment. These appointments, which will be created by converting two Indian Medical Service Colonelcies into Surgeon-Generalships, will carry pay at the rate of Rs. 2200 per mensem, and service therein will qualify for additional pension under Army Regulations, India, provided that the minimum service prescribed has been rendered.

DEATHS IN THE SERVICES.

Surg.-Gen. Charles Planck, I.M.S. (ret.), on August 23rd, aged 87. He served in the Indian Mutiny, and was at the relief of Cawnpore and Lucknow, being attached to the 90th Foot. At Cawnpore he was Field Surgeon. Subsequently he became Superintendent of the Agra Central Prison, Inspector-General of Prisons in Burma, and Sanitary Commissioner and Superintendent-General in the North-Western Provinces and Oudh. He retired in 1888.

Surg.-Gen. William George Birrell, of the Army Medical Service, has died at Lochboisdale, South Uist. He qualified M.B., C.M. Edin. in 1880 and entered the Army as surgeon on July 30th, 1881. He served in the Sudan Expedition of 1885, when he received the medal with clasp and the bronze star. He also took part in the Burmese Expedition of 1886–87, when he was mentioned in despatches. His last campaign was the Nile Expedition of 1898, when he was the recipient of the Egyptian medal. He was approaching his fifty-ninth birthday.

Correspondence.

"Audi alteram partem."

INFANT MORTALITY AND MOTHERCRAFT.

To the Editor of THE LANCET.

SIR,—Dr. W. A. Brend, in his letter published in THE LANCET of July 27th, refers to the increase in the industrial employment of women during the war, yet in spite of this there has been no rise in the rate of infant mortality.

Certain factors have tended to prevent any great increase in infant mortality during the past four years; the chief of these may be said to be the diminished birth-rate. In Derby, and generally throughout the country, the birth-rate during the year 1917 was the lowest recorded; the number of births registered in Derby in 1917 was 2332, while the number registered in the year 1913 was 3013, a difference of 681—that is to say, nearly one-fourth of the potential mothers might have engaged in industrial employment without prejudice to the rate of infant mortality. According to the Registrar-General (Sir Bernard Mallet) there were 881,890 births registered in England and Wales in the year 1913, whilst in 1917 the births registered fell to 668,346, a difference of 213,544, or a decline of 24 per cent.

Among other factors which have undoubtedly tended to reduction of infant mortality during the war, or at any rate have tended to prevent any increase in the infant mortality rate, have been (*a*) diminished alcoholism (Lord D'Abernon in a recent lecture delivered at the Royal Institute of Public Health stated: "The statistical and other evidence available indicates that insobriety among women both in public and in the home has, since the first year of the war, decreased to a level far below anything recorded in the past 50 years"); (*b*) climatic conditions during the war have not been favourable to the occurrence of summer diarrhœa—in fact, our last diarrhœa year was 1911; (*c*) other agencies which have helped to prevent increased infant mortality also, in my opinion, include the increased number of welfare centres, creches, &c., the formation of "Baby Week" Council, and generally the greater attention paid to infant welfare throughout the country since the war started; I might also include the maternity benefit obtained under the Insurance Act.

In spite of these factors favourable to infant welfare there has been some increase in the infant mortality rate in Derby. The mean rate during the three years 1912 to 1914 was 89 per 1000 births, that of the three years 1915 to 1917 was 94 per 1000 births, while in the whole of England and Wales the infant mortality rate during the year 1917 was 97 per 1000 births, as against 91 in 1916.

Dr. Ronald Carter, in his letter of the same issue, asks for figures showing the infant mortality among those attending welfare centres and among those not attending. I regret that I cannot give these figures, but certain statistics with regard to the feeding of children during the first three months of life who have been under the direct supervision of our health visitors in Derby are of interest as showing the paramount importance of breast feeding. Between the period Jan. 1st, 1908, and Dec. 31st, 1916, there were 26,532 births registered in Derby, and of these 24,676 were under the direct observation of the women inspectors; the death-rate per 1000 births of children breast-fed was 39·9, while that of the children hand-fed was 156·2, and that of children partly breast-fed and partly hand-fed was 149·8. The death-rate per 1000 births from diarrhœa was 4·0 among the breast-fed, while it was 37·5 among the hand-fed and 44·4 among those partly breast-fed and partly hand-fed.

I think these figures are, to use Dr. Carter's words, "distinctly disconcerting to the polluted atmosphere theorists."

I am, Sir, yours faithfully,

ALBERT E. BRINDLEY.

Public Health Department, Derby, August 20th, 1918.

THE TREATMENT OF WAR NEUROSES.

To the Editor of THE LANCET.

SIR,—Dr. T. Lumsden, in his letter to THE LANCET of August 17th, refers to our paper on war hysteria, and suggests that the methods of treatment we described should be followed by a "a three months' course of Country Host

convalescent treatment" in order to confirm the cure. In our opinion, however, a man who has been cured of hysterical symptoms in a Neurological Centre should remain there and work in the farm, garden, or workshops, until his cure is confirmed. In favourable cases he eventually returns to duty, and from all we have been able to hear the number of relapses is exceedingly small. The martial misfit, who ought never to have been accepted for the Army, is invalided, but he does not draw a full pension, as suggested by Dr. Lumsden, as he is never sent away until he is fit to earn a living in civil life, and we rarely recommend a pension of more than 20 to 40 per cent. Every man when he leaves us has already made arrangements for returning to work; he requires no further treatment, and we do not know of a single man invalided from our Neurological Centre who has relapsed.

The Country Host scheme is even less desirable for neurasthenia than for hysteria. It is absurd to suggest that any layman can take the place of the physician in the treatment of these difficult cases. In addition to direct psychotherapy, a combination of discipline, work, and amusement are required during convalescence, and this can only be obtained in a special hospital.—We are, Sir, yours faithfullly,

ARTHUR F. HURST.
J. L. M. SYMNS.

Seale Hayne Military Hospital, Newton Abbot,
August 19th, 1918.

THE PREVENTION OF VENEREAL INFECTION.

To the Editor of THE LANCET.

SIR,—I read with great interest and satisfaction the letter of "X. Y. Z." which appeared in THE LANCET of August 24th under the title of "40 D." I agree with those who oppose or deny much value to the "40 D" enactment, which has for its object the punishment of women who infect soldiers with venereal disease. The legal difficulty of proving the crime is well-nigh as hard as the medical one of curing the disease. Now, however, that really effective measures of preventing venereal *infection* have been at last established in the case of soldiers, and will, doubtless, become widely known and practised by civilians, the contention of "X. Y. Z." that instruction and facilities for similar prevention in the case of women should be equally disseminated is surely a sound one.

Doubtless the more medical prophylaxis is practised by men the fewer the number of infected women will be; but at this time, especially when the risk of infection is so great and its dire consequences are being spread so widely, it is both reasonable and urgent that the inroads of venereal diseases should be prevented *in both sexes* as effectively as possible and at the earliest available moment.

I am, Sir, yours faithfully,

London, August 28th, 1918. H. BRYAN DONKIN.

THE PSYCHOLOGICAL ASPECT OF 40 D.

To the Editor of THE LANCET.

SIR,—The protests of a certain section of the community against the examination of women suspected of transmitting venereal disease, to which you drew attention in a leading article in your issue of August 17th, may seem to many exaggerated and hysterical, but the psychologist, who studies the indirect effects of laws and who sees more and more the far-reaching influences of apparently unimportant matters, realises that the question is not one to be dismissed lightly or thoughtlessly.

One of the most important points to appreciate in discussing all laws, and especially the regulations we are considering, is that laws, whether they be permanent enactments or temporary regulations, are not impersonal matters, but actual living realities. The cruelest laws and the most heartless tyrannies have often been due to an impersonal method of criticism and to an inability to feel that legislation affects individuals and not abstract classes. In the present instance this evil is especially obvious. The problem is not whether we approve or disapprove of something called Regulation 40 D. It is whether we approve or disapprove of A. B., a young woman, age 23, who has been found to have become intimate with her lover C. D., being practically forced to undergo a physical examination by Dr. E. F., the prison doctor, or by Dr. G. H., whom she knows slightly or by some other doctor of whom she has never heard. Having put matters on the frankly personal basis from which all laws should be considered, we must further face the fact that A. B.'s examination is going to consist of a physical and mental experience possibly, and perhaps probably, very similar to that which she has had with C. D. Anyone who has studied carefully the growth of psychology during the past 10 years will know that I say this advisedly and without the slightest insinuation of improper conduct on the part of the doctor. A physical examination of the parts necessary to discover traces of venereal disease is not the same as a physical examination of any other parts of the body, and every psychologist knows that it arouses certain mental complexes which the physical acts necessary to make a proper examination tend to increase. But there is one very important difference between A.B.'s experience with C. D. and the examination, and it increases the evil effects of the latter. However transitory the relationship between A. B. and C. D. may have been there was some measure of sentiment, if not affection, whereas when similar mental complexes are aroused by a doctor in the course of his examination they are usually impersonal, and the mind, tending to centre on the feeling itself rather than on the person who arouses it, turns what should be a personal complex into a complex impersonal and self-sufficient. We are thus faced by the fact that the more strictly honourable the doctor is in his work the more impersonal will the girl's feeling usually become about matters that should be strictly personal, and what is supposed to be a safeguard becomes from another and a most important aspect a great danger. It must be fully realised, therefore, that Regulation 40 D does not merely place women at the mercy of the State, it places A. B. in the hands of Dr. E. F., who, if he has studied psychology, knows that with the best intentions and the most honourable adherence to the strictest rules of his profession he may do great harm, and do this harm by the very impersonality which his sense of honour dictates.

It must not be supposed that the effects of such an examination are always harmful; they may be negligible and sometimes even beneficial; but, whatever the type of woman we are examining, we are asking her to undergo an ordeal without the natural aid of affection or attraction which under other circumstances would tend to normalise her feelings. We must not forget that we are influencing emotional feelings at a time when they are at their highest and most susceptible, and that even if we do not arouse or increase a definite phobia or mania it is very probable that we are creating a changed attitude of mind towards certain most important questions. To say that the individual must be sacrificed to the good of society is in the present instance irrelevant, for we are spreading an atmosphere of publicity and promiscuity over matters which, in the interests of society as much as in the interests of the individual, should be kept on as intimate and personal a basis as possible.

Our outlook on legislation must be influenced by our growing knowledge of psychology. We must realise that in asking a girl to be examined for venereal disease the State is not merely testing her innocence, but is inevitably also testing her emotional character and her sense of modesty, and many complicated reasons may lead to her refusal. We must also understand that in making an examination of this kind the State does more than ascertain a physical fact about a girl's body, it also performs what to many may be a very serious psychological operation, and one that may lead indirectly to results which society unhesitatingly condemns and heavily penalises.

There must be many who have no special brief for the extension or for the repeal of Regulation 40 D, but who, if they realised the facts which have now become obvious to the psychologist, would demand a little deeper study of psychology by our legislators. If an examination is to become a permanent part of our legal methods of preventing the spread of venereal disease, the State should realise more fully the mental effect of its laws, and make some improvements which might mitigate their severity. The girl, for example, should be told frankly and fully what the examination means, and, whether she prefers the prison doctor or not, she should be always given the opportunity of having anybody present she chooses. There are, I am aware, doctors who insist on privacy in these matters, but there are also many with great experience who insist on the reverse, and

one, at least, of our greatest specialists refuses to perform privately an examination of this kind. It is obvious that when an examination is necessary as part of the legal machinery for the establishment of innocence the conditions of the examination should be made as easy as possible.

The law may often in its punishments produce results far different from those which it intends, but an increased study of psychology in connexion with punishment and with legal procedure will give us more insight into the effect of certain laws and suggest at least a few important alterations. By a little more sincerity and by a little deeper study we may realise that mental cruelty is often worse than physical, and, without unduly erring on the side of mercy or leniency, we may have a more exact knowledge of the effect of certain punishments on particular individuals and regulate them with a greater care and with a finer sense of the true meaning of justice. There are few matters that need a deeper knowledge of the indirect results of legislation than the questions we have been discussing. At a time not very far distant a scientific appreciation of the psychological effect of laws will be an accepted part of our social consciousness, and even to-day Governments are being forced before they legislate to accept scientific advice from many different quarters. Let us hope that the Government in considering such questions as those connected with Regulation 40 D will at least make an effort to face frankly questions of penal psychology which before long will be common knowledge.

I am, Sir, yours faithfully,

CYRIL BRUYN ANDREWS.

Reform Club, Pall Mall, S.W., August 21st, 1918.

THE FUTURE OF THE MEDICAL PROFESSION.

To the Editor of THE LANCET.

SIR,—In reference to Dr. Lauriston Shaw's letter in your issue of August 24th I should have thought that Professor Benjamin Moore and myself had made it perfectly clear that *the* form of competition which we would like to see abolished was competition for direct personal pecuniary gain, or, in other words, for patients and their fees. It is surely self-evident that this would be accomplished by the introduction of a whole-time salaried service, but Dr. Shaw confuses the issue by dragging in many other forms of competition which he rightly says such a service would not abolish.

In all walks of life there are forms of competition which it would be impossible, and indeed disastrous, to abolish, and it is so in medicine. There is nothing wrong with competition in itself, but the goal for which people compete may make it good or bad. It is good that men's varying powers should "be used to increase their opportunities of useful service"; it is bad that physical endurance and a plausible tongue should be used in competition to secure pecuniary reward at the expense of men with brains and conscience.

I am, Sir, yours faithfully,

August 26th, 1918. CHARLES A. PARKER.

COLONIES AND AFTER-CARE.

To the Editor of THE LANCET.

SIR,—In their article on Colony Treatment in THE LANCET of August 3rd Mr. P. C. Varrier-Jones and Professor G. Sims Woodhead completely misrepresent the work now done by tuberculosis dispensaries. They state:—

"Most of the consumptives now with us are 'advanced cases.' They flock to our new dispensaries, and the extensive statistics compiled from the records of the visits of these poor unfortunates are accepted as evidence of splendid things achieved."

Now, in point of fact, at no tuberculosis dispensary known to me do the advanced cases number more than 10 to 20 per cent. of all attending patients.

Even more curious is the statement that "Sir Robert Philip's well-thought-out scheme is being distorted and turned to very wrong uses." Now Mr. Varrier-Jones ought to know. He has been a close student of the writings of Sir Robert Philip, as anyone may discover who compares portions of unacknowledged text in Mr. Varrier-Jones's "Work as a Factor in the Treatment of the Consumptive Working Man" (Cambridge, 1915) with the same passages in addresses by Sir Robert Philip. For example:—

Sir R. W. Philip (THE LANCET, 1909, ii., 287) writes:—"It is time that we grasp the larger conception of tuberculosis as not merely the cause of overwhelming mortality and infinite distress, physical and economic, but also a great devitaliser of the race, indirectly responsible for an incalculable amount of other illness."

Mr. Varrier-Jones (1915, loc. cit., p. 6) writes: "It remains for us ..... to grasp the larger conception of tuberculosis as not merely the cause of overwhelming misery and distress, physical and economic, but a great devitaliser of the race, indirectly responsible for an incalculable amount of other illness."

Nevertheless, I can see nowhere signs of distortion unless in the article under discussion. The tuberculosis dispensary is a central collecting and distributing station in a given area for the large mass of tuberculous patients. From the dispensary their homes are visited, and large numbers of infected people are thus discovered. The majority of early cases are successfully treated at the dispensary, and are enabled to continue their work by a change from unhygienic to physiological conditions, such as open windows, at home. From the dispensary patients are distributed to open-air schools, to sanatoriums, colonies, and to hospitals for advanced cases.

It is surely folly to send advanced cases, unable to work, to a colony, even if coffin-making were included among the trades of the colonists. Everyone with sanatorium experience knows the depressing influence of a death on the other patients, and colony patients will be likewise affected. Moreover, the general public will rightly object to infectious patients being deliberately set to any occupation concerned with the production of food or raiment. Lastly, there are obvious administrative difficulties in attempting to treat early, febrile, and advanced cases in the same institution. Sanatoriums filled with advanced cases have failed, and so, too, the work of colonies may be brought to nought.

Some enthusiasts cannot understand that the success of any institution for tuberculosis depends on its being coördinated into a harmonious scheme. A few years ago sanatoriums alone were to wipe out the disease, and now the same promise is being made for colonies. This tempts me to conclude with the prophecy that within five years open-air schools will be proclaimed as the one and only solution.

I am, Sir, yours faithfully,

August 21st, 1918. HALLIDAY SUTHERLAND.

URBAN VITAL STATISTICS.

(Week ended August 24th, 1918.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500.000 persons, the annual rate of mortality was 10·8, against 10·4 per 1000 in each of the two preceding weeks. In London, with a population slightly exceeding 4,000,000 persons, the death-rate was 9·6, or 0·2 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 2·9 in Wimbledon, 4·7 in Eastbourne and in Rhondda, and 4·9 in Ilford, to 18·9 in Bootle, 20·7 in Wigan, and 22·6 in Rotherham. The principal epidemic diseases caused 420 deaths, which corresponded to an annual rate of 1·3 per 1000, and included 309 from infantile diarrhœa, 35 from diphtheria, 36 from whooping-cough, 29 from measles, 6 from scarlet fever, and 5 from enteric fever. The deaths from diarrhœa showed a further increase, and included 34 in London, 30 in Liverpool, 28 in Birmingham, 17 in Leeds, and 13 in Sheffield. The 710 cases of scarlet fever and 881 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were 29 and 22 below the respective numbers remaining at the end of the previous week. Of the total deaths in the 96 towns 119 resulted from violence. The causes of 15 deaths were uncertified, of which 3 were registered in Birmingham and in Liverpool, and 2 each in London and Leicester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500.000 persons, the annual rate of mortality was 9·9, against rates steadily declining from 17·4 to 10·0 per 1000 in the five preceding weeks. The 236 deaths in Glasgow corresponded to an annual rate of 11·0 per 1000, and included 28 from infantile diarrhœa, 8 from whooping-cough, 4 from measles, and 1 each from enteric fever and diphtheria. The 53 deaths in Edinburgh were equal to a rate of 8·3 per 1000, and included a fatal case each of scarlet fever and infantile diarrhœa.

Irish Towns.—The 142 deaths in Dublin corresponded to an annual rate of 18·6, or 1·0 per 1000 above that recorded in the previous week, and included 23 from infantile diarrhœa, 4 from whooping-cough, and 1 from measles. The 108 deaths in Belfast were equal to a rate of 14·3 per 1000, and included 17 fatal cases of infantile diarrhœa.

POST-GRADUATE COLLEGE, WEST LONDON HOSPITAL.—During next week clinics will be held each week-day at 2 P.M., Wednesday, Friday, and Saturday also at 10 A.M.

THE Local Government Board has issued an appeal to local authorities to set an example of economy by reducing to the minimum consistent with safety the consumption of coal, gas, and electric current in all undertakings under their control. They are further asked to take every opportunity of impressing upon the public the paramount necessity of economy, as, for example, by care in the use of water which has to be pumped either at the waterworks or at the sewage disposal works, or both.

Appointments.

BOURNE, A. W., M.B., B.C., F.R.C.S., has been appointed Obstetrician in charge of Ante-natal Department, Queen Charlotte's Hospital.
MAY-ATKINSON, H. KING, M.B., Ch.B. Vict. Manch., Medical Officer of Child-Welfare Centre, Manchester Corporation.
PAUL, HUGH L., M.B., Assistant Medical Officer at the Leeds Sanitary Committee's Hospitals.
RICHARDS, W. J., Visiting Physician to Shieldhall Hospital.
SEMPLE, AGNES L., M.B., Ch.B. Aberd., Resident Medical Officer, Dundee Poorhouse.
WATT, J., M.A., M.D., D.P.H. Aberd., Medical Superintendent of the Downs Sanatorium, Sutton, Surrey.

Vacancies.

For further information refer to the advertisement columns.

Berkshire Royal Hospital, Reading.—H.S. £250.
Bethnal Green Infirmary, Waterloo-road, E.—Asst. M.O. £350.
Bournemouth, Royal Victoria and West Hants Hospital.—Res. M.O. £400.
Bristol Education Committee.—School M.O. £500.
Bristol Royal Infirmary.—H.P. and H.S. £120.
Bristol University.—Demonstrator in Physiology.
Chichester, Graylingwell War Hospital.—Res. M.O. £1 per diem.
Children's Infirmary, Cleveland-street, W.—Female Assist. M.O. £300.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female H.P. and Obstet. Asst. £50. Also Clin. Assts.
Evelina Hospital for Children, Southwark, S.E.—H.S. £160.
Glasgow, Govan District Asylum, Cardonald.—Locum Tenens or Temp. Asst. 6 or 7 guineas weekly. Also Sen. Asst. M.O.
Great Northern Central Hospital, Holloway-road, N.—H.S. £100.
Grimsby and District Hospital.—Sen. and Jun. H.S. £175 and £125.
Hastings, East Sussex Hospital.—H.S. £250.
Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. 30 guineas.
Hospital for Sick Children, Gt. Ormond-st., W.C.—Asst. Cas. M.O. £100.
Liverpool, Royal Southern Hospital.—Two H.S. and Cas. O.
London University: University College.—Demonstrator in Anatomy. £300.
Manchester Education Committee.—Female Temp. Asst. School M.O. £350.
Metropolitan Hospital, Kingsland-road, E.—H.P. £150.
Ministry of Munitions of War, St. James's Park, S.W.—Two Female M.O.'s. £450.
Much Wenlock, Salop, King Edward VII. Memorial Sanatorium.—Temp. Asst. Med. Supt. £300.
Northampton General Hospital.—Jun. H.S. £150.
Northampton, Northamptonshire War Hospital.—Res. M.O. £1 daily.
Northumberland County.—School Med. Insp. £350.
Northwood, Middlesex, Mount Vernon Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £250.
Oldham Union Workhouse.—Res. Asst. M.O. £300.
Portsmouth County Borough.—Asst. Tuberc. O. £350.
Queen's Hospital for Children, Bethnal Green, E.—H.S. £100.
Queen Mary's Hospital, Stratford.—H.S.
Rotherham Hospital.—Jun. H.S. £150.
Royal London Ophthalmic Hospital, City-road, E.C.—Dep. Bacteriologist. £120. Also Refract. Assts. £100.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Sen. Female Res. M.O. £200.
Plymouth, South Devon and East Cornwall Hospital.—M.O. for Venereal Diseases Department. £500.
St. Helens, Lancs, Pilkington Special Orthopædic Hospital.—Res. M.O. £500.
St. Marylebone Infirmary, St. Charles-square, N. Kensington.—Temp. Asst. Res. M.O.
Salford Royal Hospital.—H.P. £250.
Scottish Women's Hospitals.—Female Asst. M.O.'s for Salonika. £300.
Sheffield Royal Infirmary.—Res. S.O. £200. Also H.S. £150.
Surrey County Council.—Tuberc. M.O. £500
Truro, Royal Cornwall Infirmary.—H.S. £150.
Walsall General Hospital.—Female Sen. H.S. and Anæs. £250.
Warrington Infirmary and Dispensary.—Sen. and Jun. H.S. £250 and £140.
Wilts County Council.—Asst. Sch. M.O. £400
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.
Wolverhampton and Staffordshire General Hospital.—Asst. H.S.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Spilsby, Lincoln.

Births, Marriages, and Deaths.

BIRTHS.

CLARK-JONES.—On August 29th, at Burbage, Marlborough, Wilts, to Dr. and Mrs. Clark-Jones—a daughter.
COPLANS.—On August 26th, the wife of Captain C. Coplans, R.A.M.C., of a daughter.
HELM.—On August 30th, the wife of Captain (acting Lieutenant-Colonel) C. Helm, M.C., R.A.M.C., of a son.
HILL.—On Sept 2nd, at Rutland-square, Dublin, to Kathleen Josephine (*née* Kenny), wife of Captain J. F. Hill, M.C., R.A.M.C., B.E.F., France—a son.
JONES.—On August 26th, at The Manor House, Tamworth, the wife of R. Francis Jones, M.R.C.S. Eng., L.R.C.P. Lond., of a son.
MENNELL.—On August 29th, the wife of James B. Mennell, M.D. Camb., M.R.C.S., L.R.C.P. Lond., Royal-crescent, London, W., of a son.
PARROTT.—On August 30th, at Ross, the wife of Harold W. Parrott, M.B., B.Sc. Lond., of a daughter.
ROBERTSON.—On August 29th, at Westbourne-terrace, Glasgow, the wife of Captain Berkeley H. Robertson, R.A.M.C., of a daughter.

MARRIAGES.

GRAHAM—PAUL.—On August 31st, at St. John's Church, Kensington, Captain James Wells Graham, R.A.M.C., to Jessie Cameron, daughter of W. H. Paul, Park House, Stroud, Glos.
HOWELLS—MILES.—On August 28th, at Llanishen Church, John Francis Howells, Surgeon, R.N., to Dora Gwendoline, youngest, daughter of Mr. James Miles, J.P., and Mrs. Miles, The Pines, Penylan, Cardiff.
MARSHALL—SEWELL.—On August 31st, at St. Alfege Church, Greenwich, Captain Reginald Prynne Marshall, R.A.M.C., M.R.C.S. Eng., L.R.C.P. Lond., to Emily Kate, second daughter of Mr. H. B. Sewell, solicitor and coroner, and Mrs. Sewell, of Croom's Hill, Greenwich, S.E.
PENMAN—WALTER.—On August 22nd, at the Parish Church, Bromley, Hugh Forrest Penman, M.B., Ch.B. Edin., Lieutenant, R.A.M.C., to Jessy Dorothy Walter, second daughter of the late William Walter and of Mrs. Walter, Willow Bank, London-road, Bromley.

DEATHS.

BRIDGES.—Accidentally drowned while on active service abroad Lieutenant-Colonel Roland Harley Bridges, D.S.O., R.A.M.C., aged 30.
KIDD.—On August 20th, at White Rock, Hastings, Joseph Kidd, M.D., aged 94.
MAXWELL.—On August 23rd, at Elmsligh-road, Paignton, suddenly, James Burns Maxwell, B.A. Cantab., M.R.C.S., L.R.C.P.
SAUNDBY.—On August 28th, at Hagley-road, Edgbaston, Birmingham, Robert Saundby, M.D., F.R.C.P., LL.D., Lieutenant-Colonel, R.A.M.C.(T.), Emeritus Professor, University of Birmingham.
TENNENT.—Killed in action on August 22nd, Major Bernard Charles Tennent, M.C., R.A.M.C.
WARD.—On August 30th, suddenly, at Wellesley House Hospital, Aldershot, William Alfred Ward, M.R.C.S., L.R.C.P. Lond., L.S.A., Major, R.A.M.C., aged 49.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

EDITORIAL NOTICE.

In consequence of the pressure on our space and the shortage of paper, the Editor may be compelled to abbreviate communications, as an alternative to their rejection, when time does not allow them to be reconsidered by their authors.

Communications, Letters, &c., to the Editor have been received from—

B.—Capt. P. H. Bahr, R.A.M.C.; Dr. G. Blacker, Lond.; Board of Agriculture and Fisheries, Lond.
C.—Dr. H. P. Cholmeley, Forest Row; Dr. Velasquez de Castro, Granada; Dr. F. G. Crookshank, Lond.; Coal Controller's Office, Lond.; Chicago School of Sanitary Instruction.
D.—Dr. R. Donaldson, Reading; Capt. F. C. Drew.
E.—Capt. R. C. Elmslie, R.A.M.C.
F.—Staff Surg. P. Fildes, R.N.V.R.
G.—Mr. C. R. Gentry, Lond.; Dr. L. Guthrie, Lond.; Mr. J. Galsworthy, Lond.
H.—Mr. G. Hamlyn, Nottingham; Harrogate Wells and Baths, General Manager of.
J.—Major W. Johnson, R.A.M.C.
K.—Messrs. P. S. King and Son, Lond.; Capt. A. M. Kennedy; King's College Hospital Medical School, Lond., Sec. of.
L.—Messrs. Longmans, Green, and Co., Lond.; Mr. A. H. Long, Lond.; Mr. W. Lloyd, Lond.; Dr. A. W. Lemarchand, Barnstaple.
M.—Dr. Doris L. Mackinnon, Dundee; Mr. R. F. Martin, Weston-super-Mare; Dr. J. B. Mennell, Lond.; Middlesex Hospital Medical School, Dean of.
N.—Major A. Neve, R.A.M.C.
O.—Mr. J. Offord, Lond.
P.—Major J. Phillips, R.A.M.C.; Miss A. A. Parson, M.B., Lond.; Miss K. Pilkington, Lond.
R.—Dr. R. R. Rentoul, Liverpool; Dr. Rivers, Barnsley; Major L. B. Robertson, C.A.M.C.
S.—Prof. J. W. W. Stephens; Dr. G. F. Still, Lond.; St. Bartholomew's Hospital and College, Lond., Dean of; Scientific and Industrial Research Dept., Lond.; Prof. E. H. Starling, Lond.
T.—Mrs. Taylor, Glasgow.
V.—Mr. S. K. Vaidya, Lond.
W.—Capt. P. L. Watkin-Williams, D.S.O., R.A.M.C.; Surg. C. P. G. Wakeley, R.N.; Capt. P. Wood, R.A.M.C.

Offices: 423, STRAND, LONDON, W.C. 2.

BOOKS, ETC., RECEIVED.

KING, P. S., AND SON, London.
Race Regeneration. By E. J. Smith. 7*s.* 6*d.*
LAURIE, T. WERNER, London.
Art of Thinking. By T. S. Knowlson. 1*s.* 6*d.*
Chats on Photography. By W. Wellington. 1*s.*
OFFICE OF THE DAIRY WORLD, London.
Soft Cheese Making. By C. W. W. Tisdale, F.C.S., and T. R. Robinson, F.S.I. 3*s.*
PAUL, STANLEY, AND CO., London.
James Hinton. By Mrs. Havelock Ellis. 10*s.* 6*d.*
PHILLIPS, STANLEY, Brondesbury-road, N.W., and W. M. LEONARD, Boston.
Neurosyphilis: Modern Systematic Diagnosis and Treatment. By E. E. Southard, M.D., and H. C. Solomon, M.D. 21*s.*
ROUTLEDGE, GEORGE, AND SONS, London.
Studies in Electro-Pathology. By A. White Robertson, Temp. Major, R.A.M.C. 12*s.* 6*d.*
SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE, London.
Problem of Man's Ancestry. By Professor F. Wood-Jones. 7*d.*
STRATFORD CO., Publishers, Boston, Mass.
Stories of the Steppe. By M. GORKI. 25c.
UNWIN, T. FISHER, AND BERNARD QUARITCH, London.
Aspects of Death. By F. Parkes Weber, M.D. 3rd ed. 3*s.*
YEAR BOOK PUBLISHERS, Chicago.
Practical Medicine Series, 1918. Vol. I., General Medicine. By F. Billings, M.D., and B. O. Raulston, M.D. $2.25. Vol. II., General Surgery. By A. J. Ochsner. $2.50.

Medical News.

CHILD WELFARE.—A special course of lectures on infant care for health visitors, nurses, midwives, school teachers, and others will be held from Sept. 16th to 20th in the lecture theatre, University College, Nottingham. The lecturers include Sir Francis Champneys, Dr. Mildred Burgess, and Dr. Mary Scharlieb. The fee for the course is 10*s*., or 1*s*. 6*d*. for a single lecture, the text-book being "Mothercraft."—Another special course of lectures will be given at Swansea, in the Secondary School for Boys, on Saturdays, beginning on Oct. 5th and ending on Nov. 2nd. The fees and text-book will be the same as above.—At 1, Wimpole-street, London, W., from 5.30 to 6.30 P.M. on Mondays, from Sept. 30th to Dec. 16th, an elementary course of lectures on infant care will be given in preparation for the elementary certificate of the National Association for the Prevention of Infant Mortality, the lecturers being Dr. F. Truby King, Mr. H. G. Adamson, Dr. H. C. Cameron, Dr. Maurice Craig, Captain F. Vincent Denne, Dr. T. N. Kelynack, Dr. Eric Pritchard, and Miss Norah March. The fee for the course is 5*s*. Application forms and full particulars may be obtained from the Secretary, National Association for the Prevention of Infant Mortality, 4, Tavistock-square, W.C. 1.

ROYAL MEDICAL BENEVOLENT FUND.—The following is a continuation of a summary of cases relieved:—

Daughters, aged 56 and 53, of M.R.C.S. who practised at Kingscliffe and died in 1890. Each has an income of £11 6*s*. from dividends. They obtain occasional work as governesses, but at present without work. Each relieved three times, £9 each per annum. Voted £9 in 12 instalments.—Widow, aged 51, of M.R.C.S. Eng. who practised at Bampton, Oxon, and died in 19.6. Was left with limited means and one daughter, now aged 19, who is training for a teacher. Income from dividends, £10. Brother pays the rent and helps a little. Relieved twice, £20. Voted £10 in two instalments.—Widow, aged 55, of L.R.C.P. & S. Edin. who practised at Blackpool and died in 1912. Applicant left without means. Friends provide about £30, and she is now endeavouring to support herself by taking paying guests, but owing to ill-health can only do so on a very limited scale. Relieved twice, £10. Voted £5.—Daughter, aged 68, of M.R.C.S. Eng. who practised at Liverpool and died in 1881. Applicant lost her income by the failure of an Australian bank and is a permanent invalid dependent on friends and help from the Fund. Relieved five times, £60. Voted £12 in 12 instalments.—Widow, aged 73, of L.F.P.S. Glasg. who practised at Rochdale and died in 1899. Was left unprovided for at her husband's death and her children, all of whom are married, can only help a little, and applicant is too old to work. Relieved once, £12. Voted £12 in 12 instalments.—Daughter, aged 37, of M.D. Dub. who practised at Moorcroft and British Guiana and died in 1884. Applicant was left without means and suffers from tuberculous glands, so unable to work. Relieved 12 times, £110. Voted £10 in two instalments.—Widow, aged 76, of M.B. Edin. who practised at Ladswade and died in 1913. Her late husband died after a very long illness and all their savings were exhausted. Applicant is now dependent on help from friends and help from the Fund. Relieved once, £12. Voted £12 in 12 instalments.

Subscriptions may be sent to the acting honorary treasurer, Dr. Samuel West, at 11, Chandos-street, Cavendish-square, London, W.1.

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD.—The following Medical Scholarships have been awarded:—*University College:* Bucknill Scholarship: I. W. Gallant, Central Foundation Boys' School, and University of London, University College. Medical Exhibitions: H. Rosenberg, Central Foundation Boys' School, and University of London, King's College; B. Deane, Botham School, York; *proxime accessit*, Rachael Halperin, University of London, University College. *King's College:* Warneford Scholarships: P. B. Wilkinson, Plymouth College; M. G. L. Perkins, Westminster School, and University of London, King's College; L. H. Savin, Christ's Hospital, Horsham. *Westminster Hospital Medical School:* Natural Science Scholarship: M. Stieber, University of London, University College. *King's College Hospital Medical School:* Science Scholarship: Christine P. Francis, Brighton High School. Arts Exhibition: W. P. H. Sheldon, Bancroft's School. *London (Royal Free Hospital) School of Medicine for Women:* St. Dunstan's Medical Exhibitions: Margaret E. Reynolds, North London Collegiate School; Ellen M. Howard, St. Paul's Girls' School. Isabel Thorne Scholarship: Ethel A. Perrott, Bromley High School. Mabel Sharman-Crawford Scholarship: Dorothy N. L. Leverkus, London (R.F.H.) School of Medicine for Women.

THE CANCER DEATH-RATE IN LEICESTER.—In his annual report for 1917 Dr. Killick Millard, medical officer of health for Leicester, says the deaths from cancer and malignant disease numbered 255, equivalent to a rate of 1·17 per 100,000 of the population, the highest rate yet recorded in the borough.

THE death is announced of Mr. Damer Harrisson, Colonel, A.M.S. (T.), lecturer on clinical surgery in the University of Liverpool and honorary surgeon to the King.

Notes, Short Comments, and Answers to Correspondents.

HERB-GROWING AND BOTANIC DRUGS.

THE Royal Horticultural Society in a recent circular urges on educational authorities and commercial corporations the importance of developing the vegetable wealth of the Empire. The dislocation in the vegetable drug traffic due to the war has already had an effect in stimulating the study of medical botany and the production of books dealing with various aspects of the subject. Dr. Thomas Blair, in his preface to *Botanic Drugs* (Cincinnati, Ohio: The Therapeutic Digest Publishing Company. Pp. 394), remarks that there are 19 countries with well-based pharmacopœias recognising 550 botanic drugs. Dr. Blair anticipates a growing market for these medicinal products, and he presents the reader with a careful record.—The author of *Histology of Medicinal Plants*, Dr. W. Mansfield (London: Chapman and Hall; New York: John Wiley and Sons. Pp. 305. Price 13*s*. 6*d*. net), is professor of histology and pharmacognosy in the College of Pharmacy attached to Columbia University, N.Y., where he has had many years' practical experience in examining powdered drugs for commercial purposes. An account is given of the various plant tissues and the cells composing them, the book going on to deal with the histology of roots, stems, barks, flowers fruits, and seeds. Many excellent original illustrations embellish the text.—A fourth edition has also just appeared of Professor L. E. Sayre's large *Manual of Organic Materia Medica and Pharmacognosy* (Philadelphia: P. Blakiston's Son and Co. Pp. 606. Price $4.50), which contains, along with a very full introduction to the study of the vegetable kingdom, details of preparation of all vegetable drugs and practical chapters on such matters as the insects injurious to drugs. More than 300 illustrations are given.—Attention may be called to the exhibit at the British Scientific Products Exhibition (now being held at King's College, London) of home-grown vegetable drugs by the School of British Medicinal and Commercial Herb-Growing. Mrs. H. Grieve, principal of the school, is president and advisory expert to the British Guild of Herb-Growers, which represents a movement to recapture permanently from Germany and Austria the herb-growing industry. In a leaflet which may be obtained from Mrs. Grieve (The Whins, Chalfont St. Peter, Bucks) a full list is given of the medicinal plants which may be grown in this country.

MEDICAL MEN AND THE VOLUNTEER OBLIGATION.

A RECENT Circular (R. 224) sent down by the Local Government Board and the Scottish Office to local and appeal tribunals deals with the duties and obligations of the Volunteer Force. Every person exempted by a tribunal is liable to be called on for Volunteer service unless the tribunal orders otherwise, and this liability rests equally on the medical man. The line, however, taken by the Medical Tribunal is that doctors should not be called on as a rule to join as Volunteers, as their services are too urgently required for medical work, and the exemption certificates so far issued have invariably contained an order stating that the applicant should not be liable to join the Volunteer Force. This will protect all who apply to the Medical Tribunal, and until their cases have been considered by the tribunal they cannot be called on to perform duty as Volunteers.

THE CARE OF THE FOOT.

ALTHOUGH it is abundantly true that an army marches on its belly, the foot requires some consideration. Major T. Rugh, in charge of military orthopædics at the office of the Surgeon-General, U.S. Army, tells us (*American Journal of Orthopedic Surgery*, August, 1918) that the Munson shoe has solved all the difficulties of corns, callosities, ingrown nails, overriding toes, and blisters of the feet. Intelligent care is now being applied to soldiers' feet on this side of the Atlantic. Under the title of "First Aid for Foot Troubles" (London: Scientific Press, Ltd., 1*s*. 3*d*. net.) Mr. E. G. V. Runting, President of the Incorporated Society of Chiropodists, has written a little book designed to render the soldier more efficient, and also, as Dr. A. W. Oxford points out in a foreword, with the aim of popularising throughout the country the work carried on at the headquarters in London. After emphasising the need for patience and attention to detail if battalion chiropody is to be carried out effectively, the author gives detailed instruction in the care of the nails and the treatment of their malformations, describing the various pads—corrective and protective—that have been found of service in chronic cases among soldiers. The importance is great of keeping the feet of marching men as healthy as possible, and the book should prove useful to this end.

CONDITIONS OF SERVICE AND OF PAY FOR SPECIAL RESERVE, R.A.M.C.

FROM inquiries received from time to time it is evident that the conditions of service and of pay in the auxiliary R.A.M.C. branches are not as well known as they might be, and the following summary of conditions prevailing under the Special Reserve may be useful for reference:—

First appointments will be made to the rank of Lieutenant, on probation. (*Para. 71, Regulations for Special Reserve, 1911 (latest).*)

A candidate for the R.A.M.C. must be under 30 years of age, and either (*a*) registered under the Medical Acts, or (*b*) a member of the Officers Training Corps who has completed that portion of the curriculum of a student of medicine which at the time of his appointment places him in a position to obtain diplomas or degrees entitling him to be registered as a medical practitioner in two years from the date of his appointment. (*Para. 81.*)

Application for commissions in the Special Reserve of Officers will be made on Army Form B 201, which will be forwarded to "The Secretary, War Office, London, S.W.," through the officer commanding his contingent, if the candidate is a member of the O.T.C., or through the officer commanding his unit, if a member of the Territorial Force. (*Para. 82.*)

If the candidate holds a commission in the Territorial Force, the officer commanding the unit to which he belongs will certify (on Army Form B 201) as to his fitness for the Special Reserve. It will not be necessary for him to resign his commission in the Territorial Force: his commission [in Territorial Force] will be determined [i.e., will cease to exist] as from the day preceding date of appointment as probationer to the Special Reserve. (*Para. 83.*)

On appointment to a commission the candidate will receive instructions as to his probationary training, usually through a General Officer Commanding-in-Chief. (*Para. 85.*)

On completion of his probationary training, and passing prescribed examination, and being satisfactorily reported on, he will be confirmed in his commission, with effect from date of first appointment on probation. (*Para. 86.*)

Liabilities and Conditions of Service.—An officer of Special Reserve of Officers will be liable to undergo training for the period and at the place which may be prescribed for his branch of service (six months recruit training), but not outside the United Kingdom without his own consent. (*Para. 93.*)

Liability to be called up for army service at home or abroad, at a time of imminent national danger of great emergency, when the Army Reserve is called out, until his services are no longer required. (*Para. 95.*)

Such liability extends from date of joining Special Reserve of Officers until expiration of a year from date of completion of his probationary period; and so on from year to year, until he attains 40 years of age. (*Para. 96.*)

Promotion.—Eligible for promotion to Captain after 3½ years, and to Major after 12 years' service.

Commission in Regular Forces.—An officer R.A.M.C. Special Reserve may, if otherwise eligible, compete for a commission in the R.A.M.C. (*Para. 113.*) An officer of Special Reserve, when called out for service in national emergency, will be eligible for commission in Regular Forces, if not over 30 (if a subaltern), or 40 (if of higher rank).

Pay, Additional Pay, Extra-duty Pay, and *Allowances* of officers of *Special Reserve* called up during an emergency will be in all respects similar to those of a regular officer of same rank and arm of service. (Quarters 3*s.* daily, fuel and light 1*s.* 1*d.* + 6*d.*, servant.) (*Para. 413.*) Special grant of £50 as compensation for disturbance and for kit, if called up during an emergency. (*Para. 419.*) Outfit allowance of £20 (one-fourth to be refunded for each year or portion of a year that he fails to complete of the period of four years, except in cases of sickness). (*Para. 426.*)

THE CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE.

THE director of the Division of International Law, Mr. James Brown Scott, has done well to bring out at this time two volumes having an important bearing on international relations. The first of these is a collection of papers relating to the Controversy over Neutral Rights between the United States and France, 1797–1800 (pp. 510, price 15*s.*), and deals with the difficult question of armed neutrality; the second volume recapitulates the Declaration of Independence, the Articles of Confederation, and the Constitution of the United States (pp. 100, price 4*s.* 6*d.*), documents which the editor justly claims to be fundamental to the world's development. In so far as these books contribute to the intelligent pacification of the peoples of the earth, they will have helped to produce an atmosphere in which the peaceful art of medicine can flourish once more. Both books are published by the Oxford University Press in New York.

SPECIFIC PARAPLEGIA IN CATTLE AND HORSES.

Mr. William Scott, F.R.C.V.S., of Bridgwater, has been experimenting with a vaccine in connexion with a specific paraplegia which has recently been affecting cattle rather frequently. The disease is local in its occurrence and soured pasture and the poor nutritive value of hay and roots appear to have made the bovines peculiarly susceptible to a form of paralysis which leaves them unable to rise for weeks at a time. The investigator has obtained a vaccine from cultures made from an organism found in the spinal fluid of animals affected. The fluid was extracted by means of a lumbar puncture between the fourth and fifth or fifth and sixth vertebræ. In 31 cases the injection of the vaccine produced very good results. The treatment is new and the great prevalence of the disease has not been noticed before, although isolated cases have been recorded from time to time. Mr. Scott deserves commendation for his enterprise in conducting a line of investigation and treatment which has not hitherto been tried. The only other disease in animals in which inoculations are prepared from spinal material appears to be rabies. Direct interference with the spinal column has been rarely undertaken to produce therapeutical results, but intraspinal anæsthesia has been brought about in dogs by puncture in the sixth interlumbar space and injecting cocaine, stovaine, or novocaine. In Mr. Scott's cases a louse (*Hæmatopinus tenuirostis*) was found almost constantly affecting the ailing subjects, and this louse harboured a bacillus identical with that found in the host's blood. Four similar cases of paraplegia were met with in equines.

A USEFUL FIELD INCINERATOR.

Major C. S. Williamson, M.R.C., United States Army, describes in the *Military Surgeon* for July a form of incinerator suitable for a large base camp where there is some scarcity of fuel, which he calls a "multiple-shelf incinerator." It is built of brick lined with fire-brick, 12 ft. high, and internal measurement is 4½ × 6 ft. It has six shelves 3½ × 6 ft., placed alternately right and left, and there is a fire-grate below. The fire is started with 200 lb. of wood, the garbage is dumped on the top plate to a depth of 4 in. or so, and after it has dried a little it is pushed over on to the second plate, and another charge introduced. The second plate, after a little more drying, gives up its charge to the third, and so on. Ultimately there will be a layer on the sixth plate, dry, and an inch thick, which will take fire itself, and should be then, but not till then, pushed on to the fire-grate, when it will burn and dry the succeeding charges. The incinerator will burn 10–15 tons of garbage in 24 hours, and will deal with fæces if mixed with the garbage in equal quantities. Clearly the available garbage should be so managed that the incinerator is never empty, but kept, by judicious feeding, always burning. The device deserves attention.

COLONIAL HEALTH REPORTS.

Gilbert and Ellice Islands.—Mr. E. C. Eliot, the Resident Commissioner, in a report to the Colonial Office, writes: The following table gives the births and deaths for 1916–17 as contrasted with the past three years:—

	Gilbert Islands.				Ellice Islands.		
	1913–14.	1914–15.	1915–16.	1916–17.	1913–14.	1915–16.	1916–17.
Births	891	773	817	701	161	142	136
Deaths	734	967	628	628	155	100	94

At Ocean Island there has been an increase in the death-rate, mainly owing to the serious drought. Since the close of the year 1916–17 a considerable number of Banabans (Ocean Islanders) have died, in spite of the efforts made by the Government in the importation of fresh vegetables, lime-juice, &c. Steps have been taken to prevent the northern spread of elephantiasis from the Samoan Group. Ordinance No. 6 of 1917 provides for medical inspection for microfilaria of all persons wishing to travel from Samoa to this colony. A considerable amount of research work in connexion with pulmonary tuberculosis and in the use of salvarsan or equivalent preparations in filariasis has been undertaken by the medical department, which has received commendation and encouragement from members in England of the Advisory Medical and Sanitary Committee for Tropical Africa. A substitute for salvarsan is now being obtained from Japan. The necessity for constant supply of this valuable preparation is still urgent, both in cases of syphilis and yaws.

W. H. K.—The suggestion that cœliac disease may be due to the use of the dummy or pacifier is open to the objection that this disease frequently begins at an age when they are not in use. Moreover, the pacifier is very common, whereas cœliac disease is rare.

M. D. O'C.—Although it was not until the fifth day of the fever that many tertian parasites were found in the peripheral blood stream, their presence was obviously possible in the blood of the organs. The old view that Laveran's bodies are pseudo-parasites would imply that altered red corpuscles can conjugate in the stomach of the mosquito, and produce oocysts, sporoblasts, and sporozoites. Doubtless cases of malarial fever have been recorded in which Laveran's bodies could not be discovered in the blood, but how is a diagnosis of malaria at all to be made without finding parasites? The toxin of the malaria parasite has not been isolated, but neither has that of the spirochæte of syphilis.

Dr. F. G. Crookshank writes to disclaim any connexion with an unregistered practitioner of somewhat similar name who has recently made application for certain hospital appointments in London.